IDG .net

DIRECTORY WARS

Until corporate IT can consolidate on one directory, coexistence may be the best option. Page 68

BUSH FACES IT TESTS

Former Speaker Newt Gingrich (left) warns that the next president will face significant IT policy challenges. Page 33

HIRING HAVENS

Slowing economy? Not in these top 10 job markets for IT pros. Page 56

COMPUTERWORLD

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NET BLAMED AS CRISIS ROILS CALIF.

Data centers factor in power emergency

BY MARK HALL

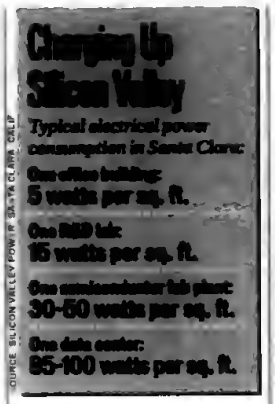
The high cost of deregulation may be bringing California's two largest electric utilities to the brink of bankruptcy, but the growth of the Internet is also to blame for the rapid destabilization of the nation's electric power infrastructure.

So concluded a premier agency of the electric power industry and officials at some utilities, who cited a huge increase in demand in areas where Internet hubs and data centers have come online in the past few years. In the heart of Silicon Valley, for example, power demands skyrocketed by 12% last year, while the rest of the state saw an overall increase of 2% to 3%, said John Roukeme, a spokesman for Silicon Valley Power, the municipal utility for the city of Santa Clara, Calif.

"A single [Internet] data center — and we have many in the area — can easily consume more power than the largest manufacturing plant we serve," Roukeme said.

Southern California Edison,

Power Crisis, page 16



'MAGIC WANDS' TO SPEED MOBILE SALES

Fast food outlets test Speedpass technology

BY BOB BREWIN

Jody Luihn, a Taco Bell/KFC franchise owner in Raleigh, N.C., says giving customers the ability to use a high-tech but low-cost "magic wand" to pay for their food will dramatically change not only his business but the entire retail industry.

The device is based on a technology known as radio frequency identification. Exxon Mobil Corp., which in 1997 introduced a version of RFID called Speedpass to speed payments at the gas pump, is conducting a test with McDonald's Corp. to let customers pay for their burgers and fries with the wave of a hand.

Joe Giordano, vice president of marketing and business development for Speedpass at Exxon Mobil, said he expects to see the Speedpass brand extended to a wide range of retail establishments, including oth-

Mobile Sales, page 85

IT PROJECTS GET CLOSER SCRUTINY

With economic slowdown, companies go for tech initiatives with fastest payoff

BY JAIKUMAR VIJAYAN

Want funding for a new IT project this year? Make sure you have a really strong business case first.

That's because concerns about an economic slowdown are making corporations far more selective than usual about how and where they allocate their IT budgets this year, users and analysts said.

Companies will continue to invest in areas such as security and on applications that improve efficiency and cut costs. But projects that don't deliver an immediate return on investment — such as large enterprise resource planning and application integration projects — will likely receive less funding in 2001, they said.

"The economy is causing companies to be a lot more cau-

IT Scrutiny, page 16

GLOBAL LANDMINES

TOM BALFOUR/VEN-MAGE

HENRY FIELDS, president of IT [illegible] Fox Ex's Latin America and Caribbean division, says hot technology projects help with recruitment.

Foreign telecom circuits can cost 10 times more than those in the U.S. Privacy regulations are much tougher in Europe. Language barriers can scramble IT directives overseas. And disaster recovery is trickier in a multinational environment. Despite the many challenges, globalization is an inescapable force in business — one that can boost your career or leave you behind.

Special Report on globalization begins on page 37.

THE ANSWER IS EASY.

intel inside
pentium III xeon

1 For hard drives, GB means 1 billion bytes; accessible capacity varies with operating environment. 2 Subject to the terms and conditions in the Dell 99.9% System Availability Program agreement, Dell provides a limited guarantee that guarantees 99.9% uptime for the system during the guarantee term. These devices have not been approved by the Federal Communications Commission for use in a residential environment. These devices are not, and may not be, offered for sale or lease, or sold or leased for use in a residential environment until the approval of the FCC has been obtained. Intel, the Intel Inside logo and Pentium are registered trademarks, and Pentium III Xeon is a trademark of Intel Corporation. Dell, PowerEdge and the Dell logo are registered trademarks of Dell Computer Corporation.

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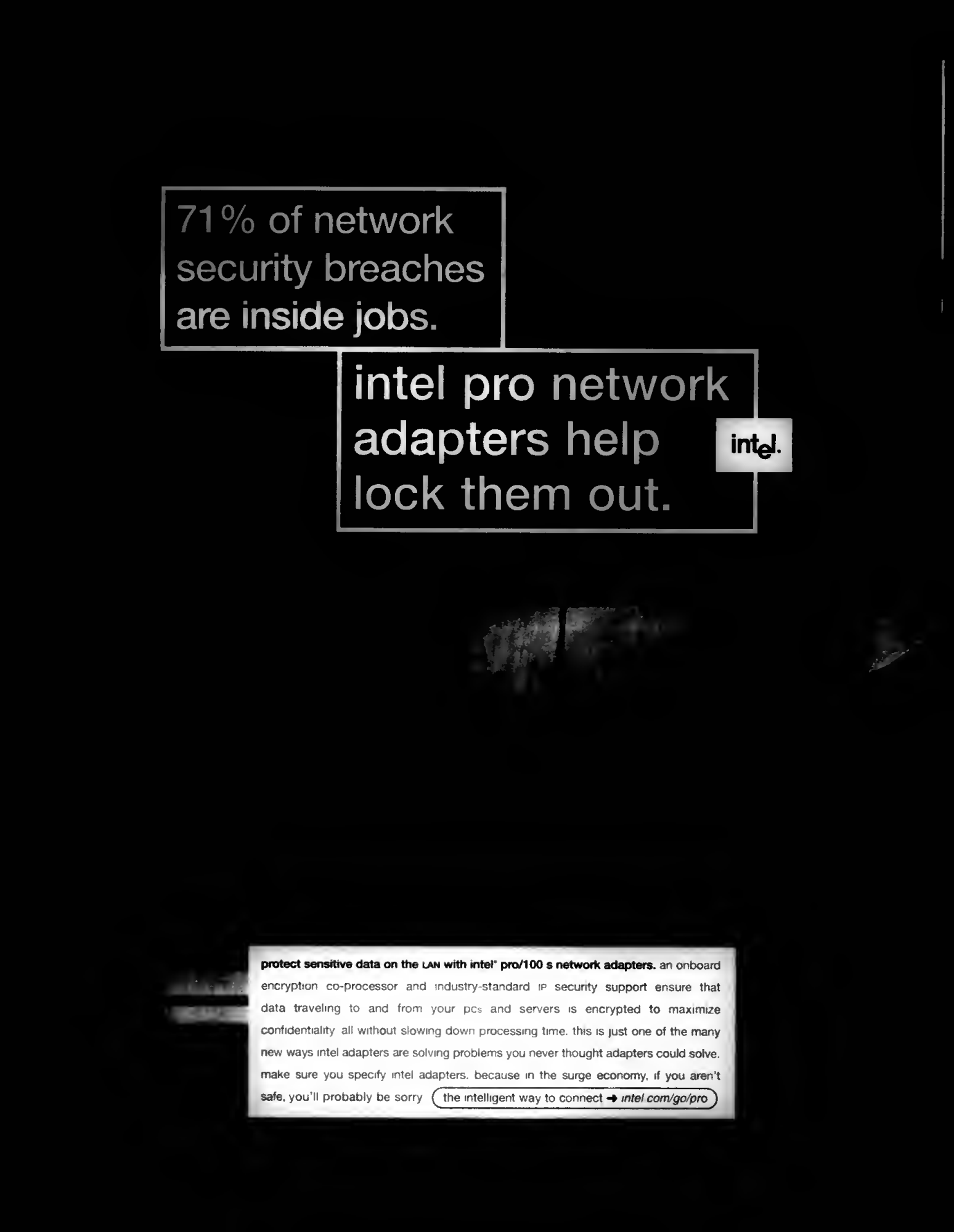
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the intelligent way to connect → intel.com/go/pro

READY TO MOVE?

IT workers are increasingly willing to jump from city to city, as well as from job to job. But there are some things you need to know before considering a job out of state. Here's a look at some resources that will help you check out potential new digs. Page 72

SNUBBING CUSTOMERS

Despite complaints to the contrary, Egghead.com claims that hackers didn't get its credit card data. Frank Hayes says denying the loss is worse than getting hacked in the first place. Page 86

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ONLINE

Find dozens of online resources to help fine-tune your international strategy, including the latest on worldwide regulations, global news, economic statistics, multinational IT organizations and expert advice. *www.computerworld.com/globalresources*

A shrinking world means growing complications. Join an online discussion on the challenges of going global. *www.computerworld.com/globalforum*

To build customer trust and win online orders, retailers need to walk the privacy walk, not just talk the talk, writes Ernst & Young's **Brian Tretick**, in the **E-Commerce Community** at *www.computerworld.com/ecommerce.*

OPINIONS

AT DEADLINE

Approval Focuses on AOL Time Warner IM

The growing importance of instant messaging as a means of communication emerged as one of the top issues cited last week by commissioners during the Federal Communications Commission's deliberations on the multibillion-dollar merger of America Online Inc. in Dulles, Va., and Time Warner Inc. in New York. The FCC imposed on AOL Time Warner several conditions designed to improve the interoperability of instant messaging systems. The FCC approved the merger Jan. 11.

DOJ Brief Defends Judgment, Judge

The Department of Justice on Friday issued an appellate court brief in the government's antitrust case against Microsoft Corp., defending U.S. District Judge Thomas Penfield Jackson's ruling, as well as Jackson himself. Addressing the issue of whether Jackson's out-of-court comments tainted the proceedings, the brief said they "do not merit vacating the judgment or removing him from further proceedings."

Vendors Team on Voting Technology

Microsoft Corp., Dell Computer Corp. and Unisys Corp. last week said they plan to jointly develop electronic voting technology that would cover every aspect of the electoral process, including registration, identification, voting and tabulation. That followed IBM's confirmation that it's "actively discussing" the idea of developing similar systems. The three companies hope to persuade election officials to use their system to replace older approaches, such as punch-card ballots and analog voting machines.

Expectations Lowered

Hewlett-Packard Co., NCR Corp. and Gateway Inc. all warned that their financial results are coming in below expectations. Gateway said it plans to cut its workforce of more than 20,000 employees by more than 10% after suffering a $64.3 million fourth-quarter loss.

Number of Hacks, Zombies Rises

Web page defacements have increased, but real threat goes deeper, say analysts

BY DAN VERTON

HACKERS vandalized and defaced more than 5,800 Web pages last year, up from about 3,800 in 1999, according to Attrition.org, a Web site that keeps tabs on such activity. But the real damage may be under the covers.

Government and industry security experts are expressing concern about the growing sophistication of Web page hacks by organized groups that have political agendas.

Such hackers may have already left behind malicious code that's capable of turning unsuspecting systems into time bombs for future distributed denial-of-service (DDOS) attacks.

These so-called zombie machines were a key part of the DDOS attacks against sites last February, including those of CNN and eBay Inc.

The problem remains serious enough that the government's Cyber Incident Coordination Group (CICG) — a newly formed group of select cyberintelligence experts from the CIA, the National Security Council, the Critical Infrastructure Assurance Office and the FBI — recently held a secure videoconference to discuss it.

Government Response

The mission of the CICG is to coordinate the government's response to cyberincidents that may pose threats to national security.

Recent industry reports of "widespread infestation" of zombie computers and concern about the new generation of DDOS tools capable of exploiting always-on Internet devices and broadband connections prompted the meeting, said a member of the CICG.

National security officials are "very concerned" about the number of systems that may be infected with DDOS code, the CICG official said.

Ben Venzke, an analyst at iDefense Inc., an Internet security and intelligence firm in Fairfax, Va., has monitored the cyberconflict in the Middle East closely.

According to Venzke, hacker groups that have traditionally specialized in Web defacements, such as GForce Pakistan, are now reaching beyond defacements to more damaging activity.

For example, when GForce Pakistan recently defaced the Web site of the Indira Gandhi Center for Atomic Research in India, the group made reference to "owning" the site and possibly stealing sensitive nuclear information.

"In the past, there might have been a tendency to write off defacements," said Venzke. "You need to step back and determine what other activity could be running in parallel. There may very well be more sophisticated elements trying to gain root access or launch DDOS attacks."

John Pescatore, a security analyst at Stamford, Conn.-based Gartner Group Inc., said "hactivism" and Web site vandalism are among the top problems that companies will confront in the coming years.

Self-Inflicted Wounds

The security incidents that companies are likely to see include self-inflicted wounds from poor administration, viruses, targeted information theft by hactivists, and more sophisticated information warfare spillover from hostilities such as the Palestinian-Israeli conflict, Pescatore said.

"The more dangerous types are the subtle ones, where a single line of text is changed in a press release," said Diane Fraiman, a spokeswoman for Sanctum Inc., a Santa Clara, Calif.-based company that has helped defend Israeli government Web sites in their conflict in cyberspace against pro-Palestinian hackers.

"The cost to business, brand and customer loyalty can be devastating," said Fraiman. "We're seeing that happen now on a regular basis."

However, once the hacker breaks into the Web server and defaces a Web page, questions remain about the integrity of the rest of the system and the network it's connected to, said Fraiman.

Once you're in the Web application, "you have total control at that point of all the content sitting on the back-end of that system," she said.

Digital Graffiti

If your Web site is defaced, it could be a sign of greater damage.

- **Subtle changes** could have been made in press releases, government policy documents, pricing information and more.
- Companies need to check more than the affected page for **deeper intrusions.**
- **Because reports indicate that zombie infestation remains widespread, companies should scrub their systems for the presence of DDOS code.**

Users Express Anger at Symantec's Lack of Support for Antivirus Software

Customers not told of service change

BY LINDA RODENCRANCE

Users have been flocking to Symantec Corp.'s public message board this month to complain about problems they have experienced downloading the company's antivirus software and the lack of available help.

Beyond.com Corp. in Santa Clara, Calif., was Symantec's commerce service provider until Jan. 3, when Symantec switched to Digital River Inc. in Minneapolis.

Cupertino, Calif.-based Symantec, however, never alerted its customers to the change, and as late as Jan. 7, customers were trying to contact Beyond.com for help and weren't getting responses.

"We are aware of the issues, and Digital River is very much on top of them," said Chris Monnette, senior director of global services at Symantec.

Todd Frostad, senior director of business development at Digital River, said last week that callers may have been on hold for as long as 30 minutes.

Since then, the customer wait times have dropped to 10 to 12 minutes, which are still unacceptable, Frostad said.

"We've added staff and are working to get the hold times down to an acceptable one or two minutes," he said.

William Malik, an analyst at Gartner Group Inc. in Stamford, Conn., said he believes there was a spike in demand that caused Digital River's server to slow down or fail.

"I think Digital River and Symantec underestimated the number of people who would be downloading the software during the holiday season, and they just didn't have enough capacity to handle the volume," Malik said.

MORE ONLINE For forums and complete security news, visit our security community at www.computerworld.com/security

Navy Embarks on Supply-Chain Mission

Military says SAP system will cut $65 million in annual procurement costs

BY MARC L. SONGINI

The U.S. Navy thinks it can slash some $65 million from its procurement software costs by switching from its homegrown supply-chain system to SAP applications.

The service's Naval Air Systems Command and Naval Supply Systems Command (Navsup) are launching a $50 million enterprise resource planning (ERP) supply-chain pilot application to improve forecasting, repair scheduling and inventory management processes, said Cmdr. Tom Gerstner. If successful, he added, the Navy plans to deploy the system for all its weapons maintenance procurement operations.

"It will allow us to better ... get the right stuff to the right place at the right time," said Gerstner.

The pilot will rely on supply-chain and maintenance modules from SAP AG's mySAP.com Web-based product suite. Gerstner said SAP won the bid by fulfilling a wide set of criteria at the best price.

The Navy envisions a seamless connection to its suppliers and the ability to procure parts for the best available prices at the touch of a button, said Joe Dougherty, assistant commander of re-engineering and ERP at Navsup. It will also be able to fill holes in its inventory, both on ship and ashore, and automatically track plane maintenance and parts replacement — all leading to greater overall battle readiness, according to Gerstner.

> It will allow us to better ... get the right stuff to the right place at the right time.
>
> U.S. NAVY CMDR. TOM GERSTNER

The Navsup initiative, launched in October 1999, is scheduled for a pilot implementation by October. The initial installation will focus on procuring parts for E-2C Hawkeye military aircraft and LM2500 gas turbine engines, which can require specialized parts that need to be custom ordered, said Gerstner.

Eye on the Prize

Mechanicsburg, Pa.-based Navsup is also developing a set of metrics to measure the supply-chain system's efficiency after it's up and running.

Cost savings are a big goal: The Navy's current procurement applications for weapons systems date back to the 1960s and have millions of lines of code. Maintaining the applications is said to cost the service $80 million per year.

In contrast, the annual tab for maintaining and upgrading SAP's Web-based mySAP.com software is expected to be only about $16 million, and it will help automate procurement processes that would otherwise have to be done manually.

The Navsup supply-chain project is one of several ERP initiatives now under way within the Navy. For instance, the Space and Naval Warfare Systems Command in San Diego intends to concentrate on financial applications, and the Naval Sea Systems Command in Arlington, Va., is in the process of implementing a maintenance system.

THE NAVY plans to improve inventory management on ship and ashore.

This move is no surprise, according to Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Berkeley, Calif., since government agencies are mandated to buy as much off-the-shelf software as possible.

True Savings to Come

However, savings aren't certain. "The question will be, what is the true net savings when you add the cost of the data conversion?" Greenbaum said. "They have to move a lot of historical data from the existing system to the SAP [system]. That's very expensive."

Scott Lewis, managing vice president of Gartner Consulting in Falls Church, Va., said the Navy has set a good example for this type of implementation by involving a number of mid- to senior-level officers in order to fully understand the scope of the project.

And "certainly, it had a supply-chain challenge that rivals anything you would see in a Fortune 500 company," Lewis said.

Accounting Errors Bog Down Supply Chains

Online firms facing brick-and-mortar transaction problem

BY MARC L. SONGINI

Ravi Kalakota thought he had written the book on e-commerce.

But the author of books about Internet business got a surprise when running his own online marketplace. He found that he was plagued by a supply-chain problem experienced by brick-and-mortar businesses: transaction reconciliation.

He and others warn that the types of problems he faced at the now-defunct Hsupply.com, a marketplace for the hospitality industry, are about to become more prevalent as companies continue to build and expand online marketplaces.

"Suppliers make a lot of mistakes," said Kalakota. "When a marketplace is growing fast, it creates an inordinate burden, because the [Web-based] systems can't check the transactions automatically."

These errors take the form of price discrepancies, spelling errors, erroneous shipments, incorrect purchase-order numbers and more. To check for and clean up mistakes, Kalakota kept hiring more and more accounting staff, which was a financial strain.

According to market research firm Killen & Associates Inc. in Palo Alto, Calif., 20% of all business transactions have errors or discrepancies. These result in reconciliation problems and can delay payments 30 to 40 days beyond their due dates and financially "bog down the entire supply chain," according to a report Killen recently made public.

Cost of Inefficiency

Inefficient transaction-processing methods and excess working capital in the "financial supply chain" can cost a $1 billion-plus firm $32 million per year, said the Killen report.

Returned inventory and delayed payments can cost companies in the short term, but there are also long-term and hidden costs that can't be immediately ferreted out — such as when key delivery dates for manufacturing are botched, said observers.

There are companies offering transaction reconciliation services that claim they can help relieve this burden, such as start-up eTime Capital Inc. in Mountain View, Calif., and Aceva Technologies Inc. and TradeCard Inc., both in New York.

DEB KUNKLER: Human intervention is still needed to catch mistakes.

Making sure supply-chain transaction data is correct is a "huge challenge," said Brenda Enney, director of e-commerce solutions at Miami-based Ryder System Inc., a logistics services provider.

Supply-chain fulfillment problems are often caused by bad data, she said.

"These errors have a drastic impact on the most splendidly designed supply-chain process," said Enney. "Many customers are on tight schedules and cannot afford delays in shipping or in delivery."

Ryder uses applications from messaging software maker Viewlocity Inc. in Atlanta to get real-time visibility into its orders from the time it receives them to delivery — which helps customers keep supply chains moving efficiently.

Perhaps the only way to weed out such errors is to create a special receipt processing method between a firm and its suppliers, said Deb Kunkler, procurement manager at Idaho Power Co. in Boise.

The firm is currently integrating its PassPort enterprise resource planning system from Indus International Inc. in San Francisco with procurement applications from Commerce One Inc. in Pleasanton, Calif.

Using a Web interface may make the errors easier to catch, but there will still be a need for human intervention, said Kunkler.

"Just because an order will go through our PassPort/Commerce One integration via the Internet, it does not ensure that all orders will be handled perfectly," she said.

Feds Seek Developers' Help Making Linux More Secure

NSA releases 'enhanced-security' code

BY TODD R. WEISS

THE U.S. NATIONAL Security Agency (NSA) last week publicly released a prototype "security enhanced Linux" operating system, hoping to attract the developer community to get involved in finding ways to improve Linux security for business and government uses.

So how is the developer community reacting so far?

Marc Torres, president of the Annual Linux Showcase and a member of Usenix, a user and developers group, says he supports the project.

"It fits in exactly with what [the NSA's] role is" — to protect U.S. information systems and oversee encryption of sensitive information, he said. "[From] some of the initial feedback I saw, it was already being embraced" in the developer community.

But, he acknowledges, some may view the work by the secretive agency with suspicion.

"There's nothing wrong with the code," Torres said. "The NSA isn't climbing inside your computer."

The NSA, based in Fort George Meade, Md., posted the prototype code on its Web site for download as part of a project to make the Linux operating system more secure for mission-critical and other sensitive uses.

The enhanced security Linux code includes stronger protections against tampering and bypassing of application security mechanisms, as well as greater limits on damage that can be caused by malicious or flawed applications, according to the agency.

But analyst Eric Hemmendinger at Aberdeen Group Inc. in Boston said he's skeptical that the open-source development community will want to embrace the NSA project.

Good luck," he said of the NSA getting assistance. "This is fundamentally not going to be used in something that any of the contributors to this would ever [receive] any benefit or gain from."

Hemmendinger said he wondered why the NSA ever assumed that Linux developers would be interested in helping the government.

According to the NSA, several executive offices — including the President's National Coordinator for Security, Infrastructure Protection and Counter-Terrorism and the President's Information Technology Advisory Committee — have called for increasing the federal government's role as a user of and a contributor to open-source software.

"Open-source software plays an increasingly important role in federal IT systems," said Jeffrey Hunker, senior director for critical infrastructure at the National Security Council, in a statement last week. "I'm delighted that NSA's security experts are making this valuable contribution to the open-source community."

An NSA spokeswoman said the agency began working on the Linux project in the summer of 1999, using security architectures that have been in use since 1992.

The release is "not intended as a complete security solution" for Linux, she added. Instead, the work thus far is being done to show that such security measures can be implemented and to encourage continued research.

The agency didn't comment on how much money has been spent on the project. ▶

Improving Linux

The NSA is seeking input from open-source developers to help make Linux a more secure operating system.

KEY POINTS

▶Open-source software is playing an increasing role in federal IT systems, so increased security capabilities would be beneficial for the government.

▶NSA work with Linux began in 1999, resulting in the prototype enhanced-security Linux version.

▶The open-source development work is being done under the terms of the GNU General Public License.

White House Gives Up on Export Controls

BY PATRICK THIBODEAU

The White House last week essentially threw in the towel on the government's ability to limit exports of high-performance computers, while also acknowledging that there's little the U.S. can do to stop other nations from developing high-powered systems by harnessing computer power via networked clusters of machines.

As part of an announcement that substantially relaxes the limits placed on computer exports, the Clinton administration said it "has concluded that there are no meaningful or effective control measures for computer hardware that address the technological or marketplace challenges" identified during a policy review that began in the fall of 1999.

The U.S. adopted export restrictions in 1993 in an effort to keep high-performance computing power out of the hands of nations that might use it to improve military capabilities. But hardware and chip manufacturers have argued that the restrictions put them at a competitive disadvantage.

It was the sixth time the U.S. had raised the export levels, but the White House said it was apparent by mid-1999 that computer hardware capabilities were "outpacing the ability of export control policy to keep up." The recently completed policy review found that efforts to control sales of computer hardware are "becoming ineffective and will be increasingly so within a very short time." Instead, U.S. officials said they will focus their efforts not on hardware but on keeping applications used in national security from getting into the wrong hands.

Clusters don't necessarily have the same capabilities as supercomputers, but "they can do quite a good job," depending on the applications written for them, said Debra Goldfarb, an analyst at IDC in Framingham, Mass. "You can construct a lot of stuff out of pretty cheap components," she said.

As a result, the White House last week eased its restrictions on sales to a host of nations, including India, Pakistan, China, Vietnam and countries in the Middle East.

The new limits allow exports of computers with processing power of as much as 85,000 million theoretical operations per second (MTOPS), more than three times higher than the previous limit of 28,000 MTOPS.

To provide some perspective, a 32-processor system made up of Intel Corp.'s 64-bit Itanium processors would operate at about 94,000 MTOPS, said Ken Kay, executive director of Computer Coalition for Responsible Exports, a Washington-based group that represents vendors such as IBM and Sun Microsystems Inc.

Kay said the new MTOPS level will meet industry needs until the middle of next year. In the meantime, his group will push Congress to completely revamp the export control program.

Congress has 60 days to review the White House action. ▶

Export Revisions

The Clinton administration is relaxing restrictions on sales of high-performance computing systems to several nations. It's modifying the system of categorizing countries from four tiers to three tiers.

Who gains the most: South Korea and countries in South America, Central America and much of Africa join Japan and Western Europe in the most liberal category, or tier.

Still out: Iraq, Libya, North Korea, Cuba, Sudan, Syria.

Corrections

Due to a reporting error, a dot-com company advertising during the Super Bowl and its chief technology officer were incorrectly identified in the article "Many Dot-coms Pass on Super Bowl Ads" on page 12 of the Jan. 8 issue. HotJobs.com Ltd. is the advertiser, and George Nasseff Jr. is HotJobs' chief technology officer.

The story about Kozmo.com Inc., "Falling Dot-com Star" on page 42 of the Jan. 1 issue, incorrectly stated how the company plans to raise $20 million to $25 million. Bob Greene, a managing partner at New York-based Flatiron Partners, a Kozmo investor, said Kozmo plans to raise the money through another round of investment funding.

The article "Get Payback on Wireless," which ran in the Jan. 1 IT Agenda section, should have said that Guaranteed Overnight Delivery gets response times of 8K bit/sec for short-message connections.

A labor attorney at Fenwick & West LLP in Palo Alto, Calif., was incorrectly identified in "Temp Suit Sounds Alert" on page 14 of the Dec. 18 issue. The attorney is Raymond Hixson.

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BY PATRICK THIBODEAU
WASHINGTON

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It was the sixth time the U.S. had raised the export levels, but the White House said it was apparent by mid-1999 that computer hardware capabilities were "outpacing the ability of export control policy to keep up." The recently completed policy review found that efforts to control sales of computer hardware are "becoming ineffective and will be increasingly so within a very short time." Instead, U.S. officials said they will focus their efforts not on hardware but on keeping applications used in national security from getting into the wrong hands.

Export Revisions

The Clinton administration is relaxing restrictions on sales of high-performance computing systems to several nations. It's modifying the system of categorizing countries from four tiers to three tiers.

Who gains the most: South Korea and countries in South America, Central America and much of Africa join Japan and Western Europe in the most liberal category, or tier.

Still out: Iraq, Libya, North Korea, Cuba, Sudan, Syria.

Clusters don't necessarily have the same capabilities as supercomputers, but "they can do quite a good job," depending on the applications written for them, said Debra Goldfarb, an analyst at IDC in Framingham, Mass. "You can construct a lot of stuff out of pretty cheap components," she said.

As a result, the White House last week eased its restrictions on sales to a host of nations, including India, Pakistan, China, Vietnam and countries in the Middle East.

The new limits allow exports of computers with processing power of as much as 85,000 million theoretical operations per second (MTOPS), more than three times higher than the previous limit of 28,000 MTOPS.

To provide some perspective, a 32-processor system made up of Intel Corp.'s 64-bit Itanium processors would operate at about 94,000 MTOPS, said Ken Kay, executive director of Computer Coalition for Responsible Exports, a Washington-based group that represents vendors such as IBM and Sun Microsystems Inc.

Kay said the new MTOPS level will meet industry needs until the middle of next year. In the meantime, his group will push Congress to completely revamp the export control program.

Congress has 60 days to review the White House action. ◗

MORE ONLINE

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Corrections

Due to a reporting error, a dot-com company advertising during the Super Bowl and its chief technology officer were incorrectly identified in the article "Many Dot-coms Pass on Super Bowl Ads" on page 12 of the Jan. 8 issue. HotJobs.com Ltd. is the advertiser, and George Nassoff Jr. is HotJobs' chief technology officer.

The story about Kozmo.com Inc., "Failing Dot-com Star," on page 42 of the Jan. 1 issue, incorrectly stated how the company plans to raise $20 million to $25 million. Bob Greene, a managing partner at New York-based Flatiron Partners, a Kozmo investor, said Kozmo plans to raise the money through another round of investment funding.

The article "Get Payback on Wireless," which ran in the Jan. 1 IT Agenda section, should have said that Guaranteed Overnight Delivery gets response times of 8K bit/sec. for short-message connections.

A labor attorney at Fenwick & West LLP in Palo Alto, Calif., was incorrectly identified in "Temp Suit Sounds Alert" on page 14 of the Dec. 18 issue. The attorney is Raymond Hixson.

GOOD MORNING

Once again, today has arrived. And it brings with it the same meetings, the same problems, and, in many cases, the same solutions. Unfortunately, many of those same solutions aren't working. Because business has been transformed by the little letter e. And the technology that was once the domain of twentysomethings with a website and a warehouse in their garage is now an integral part of every business. Fortunately, however, the same principles that made for good management before still make good eBusiness sense. Of course, that's a lot more difficult now that your business isn't contained by four walls and needs to be accessible anywhere, anytime, for anyone. That's why it's more important than ever to have the very best software. Software that manages your business processes – integrating all parts of your company, including suppliers and partners, to make sure that they're working together seamlessly. Software that manages information – storing, accessing, and utilizing the vast wealth of knowledge that you continually gather about yourself and your customers. Software that manages your infrastructure – maintaining and securing your assets while letting you see the big picture to ensure that everything keeps running smoothly. There's no doubt about it. Things have changed. But that just means there will be new solutions to the old problems. And we think that's a change for the better.

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BRIEFS

IM Firm to Post Loss

Instant messaging provider Tumbleweed Communications Corp. in Redwood City, Calif., said that despite an expected 65% to 76% increase in fourth-quarter revenue, it still projects revenue to be below expectations and will cut costs, beginning with a 20% staff reduction.

The company said it expects to report a net loss of $17 million to $18.1 million, compared with a loss of $7.6 million in the fourth quarter of 1999.

E-Commerce Faces Backlash in China

Two-thirds of Internet users in Hong Kong are uncomfortable with e-commerce, according to survey results for the fourth quarter of last year from Internet Audience Measurement Asia Ltd. (Iamasia), a Hong Kong-based research company. Negative responses to e-commerce soared from 36% in the company's previous survey in the second quarter of last year. A similar backlash has occurred in mainland China, where the negative responses grew to 41% from 20% in the second quarter. Iamasia executives blamed the backlash partly on heavy promotion of e-commerce last year in Hong Kong that built up expectations that weren't fulfilled.

Ford Researches Gadgetry Distractions

Ford Motor Co. in Dearborn, Mich., last week launched a high-tech driving simulation laboratory to fuel research on curbing driver distraction on the roadways.

The automaker, which spent $10 million to build the facility, plans to measure a drivers' abilities to cope with common traffic situations while using cellular telephones, in-vehicle communications systems and electronic gadgets.

Office for the Mac

Microsoft Corp. last week previewed a version of Office designed to run on the Mac OS X operating system. The product is scheduled to be available this fall. Microsoft also announced the beta release of Outlook 2001 for Macintosh.

Automakers Reap Gains from E-Locator

But more efficient build-to-order still far off

BY LEE COPELAND

Ford Motor Co. and General Motors Corp. last week reported promising results from Web-based locate-to-order systems and pilots. But a report from Forrester Research Inc. found that those projects don't address lingering dealer lot inventory, a long-standing problem that ticks up to $700 onto the cost of a new vehicle.

What will trim dealer lot inventory costs — by half — is the industry's next big online push, which will allow customers to order directly from manufacturing plants, according to Forrester. However, systems to enable that won't be in place for years.

"Locate-to-order helps by making regional inventory visible to customers," said Dan Gilbreson, an analyst at Forrester in Cambridge, Mass. "The problem with [it] is the issue of having the right cars [even] within the region."

Still, Dearborn, Mich.-based Ford attributed $1 billion in sales last year to its arsenal of Web car shopping sites, which feature a Web front-end that allows people to search through dealer and manufacturer inventories and then close the sale with any local dealer. After analyzing data collected between March 1999 and March 2000, Detroit-based GM estimated that more than 410,000 vehicles were sold through its locate-to-order online shopping sites, accounting for $8 billion in sales.

Ford also reports that its company-owned dealerships, called Auto Collection stores, sold about 2,600 vehicles online — or 5% of overall sales from those stores. Last May, Ford launched a Tulsa, Okla.-based cyberstore that allows customers to search inventory from 11 local dealerships. The pilot is closing about 80 sales per month and receiving 5,000 Web site hits per month, Ford officials said.

Gap Between Promise, Hype

With build-to-order systems, which connect dealerships and the manufacturer, the automakers could cut dealer lot inventory costs by $150 to $700 per vehicle. But Forrester forecasts that only 20% of vehicles will be manufactured that way by 2010.

"We don't like to use the term build-to-order because it brings to mind things not in place yet," said Pete Olsen, a Ford spokesman. "We're working towards that, but it involves a putting a whole new system in place."

Web Drives Sales

GM
$8B

FORD
$1B

Sales defined as sales generated online. Ford data for 2000; GM data from March 1999 to March 2000.

GM launched an ambitious Web pilot in Brazil last September, hoping to aid sales of a subeconomy car called the Celta that sells for about $7,000.

Brazilian consumers bought about 15,000 Celtas by December, 60% of them online using a locate-to-order system.

"This is a classic locate-to-order model, but this system is the way to go, in terms of our longer-term vision of build-to-order," said Jeff Blust, GM's director of application development.

Ailing E-Health Sites Stymie Users' Web Initiatives

Losses at health content sites have domino effect

BY JULEKHA DASH

The ever-struggling online health care industry took a sharp turn for the worse last year.

Internet health companies posted $4 billion in financial losses last year, four times the losses in 1999, according to a recent report by Corporate Research Group Inc. in New Rochelle, N.Y. And their woes not only have harmed their own bottom lines but have also disrupted some of their clients from starting their own Web initiatives.

"Health care organizations are looking very critically at the [technology] partner they work with," said Peter J. Plantes, a vice president at VHA Inc., an Irving, Texas-based cooperative of community hospitals.

He said some of his company's members saw their online strategies fail last year because they chose to partner with vendors — to provide either content or IT infrastructure — that failed.

"The whole e-health segment has really struggled. The losses have been astounding," said Carl Mercurio, president of Corporate Research Group.

Alan Powell, manager of Internet services at the University of Texas M.D. Anderson Cancer Center, said his facility tried to work with online health content firms that could help package cancer-related information on its Web site, but their discussions never came to fruition.

The online health firms "were going through so many changes, it was hard to have continuity to get products developed and prototypes," said Powell. "We really had the whole concept go down in flames."

The biggest losses were among sites that offer health content information, according to Mercurio. "Anybody who assumed consumers or physicians would pay for this stuff was wrong," he said.

For instance, Austin, Texas-based drKoop.com Inc. announced it had run out of cash last August, shortly after a few venture capital firms gave it a $20 million cash infusion [News, Aug. 28].

Online health firms that have the greatest chance of succeeding are those that connect health care organizations with third parties or offer productivity savings, said Mercurio. That's because the health care industry relies on inefficient means — such as faxes and phone calls — to handle processes like submitting claims, he explained.

Companies that offer productivity and connectivity services include Atlanta-based WebMD Corp. and The TriZetto Group Inc. in Newport Beach, Calif.

WebMD showed its own signs of struggle last year. In addition to posting financial losses, it announced layoffs last September and terminated a five-year content partnership with Du Pont Co.

But analysts said that both WebMD and TriZetto acquired companies that offer physician practice management systems, gaining access to a client base as well as applications that can be Web-enabled.

Poor Prognosis

Online health firms posting losses in 2000:

Drkoop.com

WebMD.com

PlanetRX.com

MotherNature.com
(Went out of business in November.)

Neoforma.com

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"Hey buddy,

Retailers Pilot XML for Price Checks, Inventory Updates

Standards should be ready later this year

BY CAROL SLIWA

RETAILERS GOT a chance to catch a glimpse of the future yesterday in New York when the National Retail Federation's (NRF) technology division and several software vendors demonstrated how XML can be used to help merchants instantly check prices and update inventories.

For instance, if a line is building up at a retailer's checkout counter, a store associate armed with a wireless handheld device could walk up to customers and have them pay by credit card, using an application like one that 360Commerce Inc. in Austin, Texas, created for yesterday's IXRetail event, which was held in conjunction with the NRF's annual conference.

The device scans the bar code on the package — or the item number can be entered manually — and an XML-based message checks the server for price and any needed product description. Another XML message instantly reduces the inventory on the stock-recording or inventory system.

Inside the Business

"Most other XML work today is being done to facilitate communication between businesses — B2B," said Jerry Rightmer, chief technology officer at 360Commerce. "[The NRF technology division's] pilot is [designed] to demonstrate application-to-application integration inside of the retail enterprise."

In another demonstration, a retail employee equipped with a Microsoft Corp. Pocket PC was able to check a product's price, change it and then print a new shelf label — all without leaving the store aisle. The price would also be changed on the price server.

Several vendors contributed price, inventory and Web servers running on different operating systems — including Linux, Windows 2000 and Sun Microsystems Inc.'s Solaris — for the demonstration. Their aim was to show that XML-based messages could enable data exchange among a wide range of clieots (including point-of-sale terminals, Web kiosks and handheld devices) and servers running on different operating systems.

"The client can go to any of the four servers at the flip of a switch and get price data by using tbe same [XML] messaging," said Dan Rawsthorne, chief architect at Seattle-based AccessVia Inc., which built the sign-printing application used in the demonstration at the IXRetail event.

Retail applications typically have their own proprietary means for requesting and serving prices, and they use different protocols for messages and different formats for data, Rightmer said.

Data exchanges between different applications are "usually messy" and "there are a lot of flat-file transformations taking place," said Rawsthorne.

"In every industry, you have a collection of independeotly designed application systems, and that's not going to change," said Roy Schulte, an analyst at Gartner Group Inc. in Stamford, Conn. "What does change is that by agreeing on the format of the exchange of data, which is XML, you make it a little easier for industry standards to he written."

Cathy Hotka, vice president of IT at the NRF, said, "Many retailers are concentrating on new store systems, and those have got to be integrated into existing processes. In the absence of XML, what companies will do to integrate disparate systems is create klugeware. What's clearly needed is XML, because this will eliminate booby traps for future IT staffs."

The NRF's Association for Retail Technology Standards division said it hopes to have some XML schema production-ready during the second quarter. ◗

XML in Retail

The NRF's Association for Retail Technology Standards yesterday piloted XML-based messages in the following scenarios:

- Customer scans item at kiosk. Price is returned. Retailer changes price several minutes later. New price is displayed at the kiosk.
- Retail employee rings purchase at cash register. Inventory is reduced immediately on servers.
- Cashier queries customer history at checkout counter and suggests additional purchases.

Systems by event: AccessVia, Blue Martini, Microsoft, PCMS Gmbh, SoftSolution and 360Commerce

Home Appliance Maker Outsources Network

BY JAMES COPE

Home appliance maker Hamilton Beach/Proctor Silex Inc. knew it needed to develop a robust internetwork that would include the company's Web site as well as an extranet for suppliers and customers. The question was whether to build and manage the network in-house or use a managed service provider that could do it all for a fee.

Stephen Lestyan, vice president of information services at Hamilton Beach, said that after considering the development time, costs and capabilities required to build aod manag the network in-house, he opted to use managed service provider Availigence Inc. Both companies are in Glen Allen, Va.

LESTYAN: Building a network in-house was too expensive.

According to Lestyan, building the network in-bouse would have cost $1 million for a new network monitoring infrastructure, plus about $250,000 in salaries and benefits for new hires to run it. That cost, coupled with the several months of development time that would he required, made the in-house option unacceptable, Lestyan said.

Other Reasons

Lestyan's choice of a managed service provider was driven in part by a negative experience with his previous Web hosting company. He said the company, which he declined to name, didn't have the network management capabilities that it claimed to have.

But, he added, his decision was also based on new requirements for an outsourcer that could effectively manage mission-critical network applications that support Hamilton Beach manufacturing plants, customers and suppliers.

Among those applications is an image bank of product drawings used by Hamilton Beach manufacturing plants in China and Mexico. There are also customer programs, information for Hamilton Beacb salespeople and material requirement plans for suppliers.

Ultimately, the extranet will supplement the electronic data interchange system that's used to process almost 85% of Hamilton Beach's orders, he said.

Lestyan said Availigence has agreed to "turnkey the network" for a monthly fee. That includes hosting, management, reporting and help desk support, he explained. He declined to specify the fee amount.

Availigence chairmao and CEO Leo IanTosca said his company will subcontract with AT&T Corp. for Web data center services, an arrangement that Art Williams, an analyst at Giga Information Group Inc. in Cambridge, Mass., said makes sense. The managed service provider can focus on network management and reporting, be said, while tbe data center company can concentrate on providing the infrastructure and Internet connectivity. ◗

Jack of All Trades

Services offered by managed service providers include the following:

Application hosting	Network operating center
Application integration	PC and desktop management
Asset management	Performance monitoring
Co-location facilities management	Project management
Data backup	Reporting/report generation
Database management	Security implementation
Internet services	Security monitoring
Intranet services	Software change management
Management consulting	Storage management
Monitoring with correction	Web server management
Monitoring with notification	Web site hosting
Network infrastructure management	Web site monitoring

SOURCE: Raymond James & Associates Inc., St. Petersburg, Fla.

.NET

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Microsoft's® .NET™. New kinds of applications. New tools for building them. And new ways to deliver them.

They're calling it the Next Generation Internet. Which means it's a big part of the future for you, your e-business customers and partners. And you can learn more about it, sooner, in **eDirections** in January. With stories from the frontlines of early .NET deployments, at places like Starbucks, Ohio Savings Bank, buy.com, Radio Shack and other early .NET adopters.

eDirections in January. Focusing on Microsoft .NET, it could be your first look at the future. ***Yours.***

A custom publication exclusively for qualified subscribers to CIO, ComputerWorld, InfoWorld, Network World and The Industry Standard.

BRIEFS

In This Corner...

Microsoft Corp. and the federal government last week picked their legal teams to argue the antitrust case before the U.S. District Court of Appeals Feb. 26 and 27. In Microsoft's corner will be Richard Urowsky, an attorney at Sullivan & Cromwell, who has been with the case since the beginning. The government is bringing in two relative newcomers: David Frederick and Jeffrey Minear, attorneys from the Office of Solicitor General, which handles government appeals and argues cases before the U.S. Supreme Court.

Avaya to Acquire VPNet for $120M

Network equipment maker Avaya Inc. in Basking Ridge, N.J., has announced it will purchase VPNet Technologies Inc. in Milpitas, Calif., for $120 million in cash. VPNet makes virtual private network gateways that create point-to-point encrypted connections over the Internet and private networks.

Hacker Charged

Jerome T. Hackencamp, a Los Alamos National Laboratory employee, was charged last week with hacking into six Web sites after the FBI turned up the alleged violations during a routine background check. Among the charges were seven counts of unauthorized computer access and eight counts of intercepting electronic communications. The companies targeted by Hackencamp, a former student at the University of Wisconsin, included eBay Inc., Lycos Inc. and Exodus Communications Inc.

Short Takes

VA LINUX SYSTEMS INC. in Fremont, Calif., has issued its first preproduction release of the new Linux 2.4 kernel, aimed at end users who want to test the kernel on their systems. . . . Linux operating system software sold by TURBOLINUX INC. in Brisbane, Calif., will include IBM e-business software under a global distribution and support agreement. . . . HEWLETT-PACKARD CO. Chairman, President and CEO Carly Fiorina was appointed to the board of CISCO SYSTEMS INC. in San Jose.

Third Parties May Control Future of Collaboration

Vendors, users are already building communications into custom apps

BY JENNIFER DiSABATINO

While wireless and application service provider access to collaborative systems will be hot topics at Lotusphere 2001 this week, recent announcements point to another trend: Collaboration as a platform unto itself may not be around much longer.

Lotusphere, the annual conference for Lotus Development Corp. Notes and Domino users and business partners, is one of two annual events that analysts and users look to gauge the outlook for messaging and collaboration. The other is rival Microsoft Corp.'s Exchange and Collaboration conference in the fall.

It will matter less whether Domino/Notes or Exchange can claim additional seats, and more which technology is embedded in other applications like enterprise resource planning (ERP) and customer relationship management (CRM), said Mark Levitt, an analyst at IDC in Framingham, Mass.

"We are moving away from the idea in which a monolithic system will be the leader, [to one in] which a [collaboration] platform will underlie other applications," Levitt said.

Third-party vendors and even users are already scurrying to build custom applications that incorporate collaboration. For example, Lotus value added reseller IT Factory Inc. in Cambridge, Mass., is shipping a suite of applications built on top of Notes with an integrated Web client. Swiss finance firm UBS Warburg LLC, a business group of Zurich-based UBS AG, built its own collaborative platform into a real-time portal for financial transactions from scratch.

That makes sense, said Dana Gardner, an analyst at Aberdeen Group Inc. in Boston. Business relationships are built on social relationships, he said, and a system in which the communication system is separate from the business functions is counterintuitive.

"You're not going to convert your ERP into Domino; you're going to want to convert your Domino into your ERP," Gardner said. "It's simply a function of every application not being complete unless it has communications functions embedded."

Lotus is already doing that to some degree, Levitt said, since Sametime, the company's instant messaging offering, is or will soon be embedded in several Web applications. Likewise, Microsoft is planning to ship its Mobile Information Server by midyear to provide Wireless Application Protocol access to Exchange data as well as to ERP and CRM data.

Perhaps the most telling indicator that communications and collaboration will become part of other products is the announcement two weeks ago that Lotus is planning a reorganization — a development that many observers expect to result in the company being more closely integrated with its parent, IBM.

"It is clear, based on the solutions that Lotus and IBM have jointly released over the last year, that the IBM sales force is interested in positioning the Lotus solutions as part of the IBM line," Levitt said. "That's all positive. . . . The product integration between IBM and Lotus occurring over the last several years is for the benefit of the customer."

MORE THIS ISSUE
Lotus mum about reorganization until Lotusphere 2001 **See page 30.**

Working Together

Analysts say messaging and collaboration should become components of other applications for these reasons:

- **It's human nature — in order to do business, we have to be social.**
- **It makes sense to move a collaboration function into a business application, rather than the reverse.**
- **Users are more productive if they can communicate while sharing applications.**
- **It simplifies a unified messaging model.**

Comdisco Closes Managed Network Services Unit

BY LUCAS MEARIAN

IT services company Comdisco Inc. announced last week that it is closing its managed network services unit because it hasn't met growth expectations.

The Rosemont, Ill.-based company said it will also cut about 96 jobs, or 3% of its 3,200 workers.

Of the company's 5,300 customers, only 37 purchased networking services, according to a Comdisco statement.

Keeping the unit open would have forced the company into a market of fast-changing technology where it would have to make "significant, ongoing investments in operations," said Phillip A. Hewes, Comdisco's interim president and CEO.

"With this decision behind us, we can continue to focus on and grow our key technology services," said Hewes, referring to Comdisco's continuity, Web-hosting and data-storage services.

Hewes took over as interim CFO of the technology services company after former CEO Nicholas K. Pontikes resigned in December. The company is conducting a search for a permanent CEO.

Comdisco added networking services to its business in 1995 but went up against stiff competition from other larger and lower-priced vendors.

"We will do everything we can to help our customers make a smooth transition," Hewes said.

Notes, Exchange And GroupWise?

Talk about collaboration and messaging, and Lotus and Microsoft own the discussion. Their products, Notes and Exchange, dominate the corporate messaging market.

Meanwhile, a small but loyal contingent of GroupWise users wonder why their product of choice isn't on the radar screen. GroupWise is the collaboration and messaging successor to WordPerfect Office from Novell Inc.

"Administering GroupWise really can't be much easier," said Tom Ross, GroupWise administrator at Fowler, White, Gillen, Boggs, Villareal and Banker PA, a Tampa, Fla., firm with more than 400 lawyers.

"I have easy-to-use tools available to repair user databases and post-office databases. I can run maintenance or repair on those databases on a regular schedule, in the middle of the night or during the day when need be. And to tell you the truth, I have zero production downtime," Ross said.

Dana Gardner, an analyst at Aberdeen Group, said GroupWise lacks little or nothing technically. Novell just failed to develop partner channels, which would have brought it to large enterprise customers.

"GroupWise has been somewhat withering on the vine because of some business issues rather than some technology issues," Gardner said.

"It's not always having the best product that wins the market," said Mark Levitt, an analyst at IDC.

"I think they are the Rodney Dangerfield of the industry," Levitt said, adding that perception has become reality. "There is little they can do to significantly reverse the situation."

– Jennifer DiSabatino

BRIEFS

In This Corner...

Microsoft Corp. and the federal government last week picked their legal teams to argue the antitrust case before the U.S. District Court of Appeals Feb. 26 and 27. In Microsoft's corner will be Richard Urowsky, an attorney at Sullivan & Cromwell, who has been with the case since the beginning. The government is bringing in two relative newcomers: David Frederick and Jeffrey Minear, attorneys from the Office of Solicitor General, which handles government appeals and argues cases before the U.S. Supreme Court.

Avaya to Acquire VPNet for $120M

Network equipment maker Avaya Inc. in Basking Ridge, N.J., has announced it will purchase VPNet Technologies Inc. in Milpitas, Calif., for $120 million in cash. VPNet makes virtual private network gateways that create point-to-point encrypted connections over the Internet and private networks.

Hacker Charged

Jerome T. Heckenkamp, a Los Alamos National Laboratory employee, was charged last week with hacking into six Web sites after the FBI turned up the alleged violations during a routine background check. Among the charges were seven counts of unauthorized computer access and eight counts of intercepting electronic communications. The companies targeted by Heckenkamp, a former student at the University of Wisconsin, included eBay Inc., Lycos Inc. and Exodus Communications Inc.

Short Takes

VA LINUX SYSTEMS INC. in Fremont, Calif., has issued its first pre-production release of the new Linux 2.4 kernel, aimed at end users who want to test the kernel on their systems. . . . Linux operating system software sold by TURBOLINUX INC. in Brisbane, Calif., will include IBM e-business software under a global distribution and support agreement. . . . HEWLETT-PACKARD CO. Chairman, President and CEO Carly Fiorina was appointed to the board of CISCO SYSTEMS INC. in San Jose.

Third Parties May Control Future of Collaboration

Vendors, users are already building communications into custom apps

BY JENNIFER DiSABATINO

Web, wireless and application service provider access to collaborative systems will be hot topics at Lotusphere 2001 this week. But recent announcements point to another trend: Collaboration as a platform unto itself may not be around much longer.

Lotusphere, the annual conference for Lotus Development Corp. Notes and Domino users and business partners, is one of two annual events that analysts and users look to gauge the outlook for messaging and collaboration. The other is rival Microsoft Corp.'s Exchange and Collaboration conference in the fall.

It will matter less whether Domino/Notes or Exchange can claim additional seats, and more which technology is embedded in other applications like enterprise resource planning (ERP) and customer relationship management (CRM), said Mark Levitt, an analyst at IDC in Framingham, Mass.

"We are moving away from the idea in which a monolithic system will be the leader, [to one in] which a [collaboration] platform will underlie other applications," Levitt said.

Third-party vendors and even users are already scurrying to build custom applications that incorporate collaboration. For example, Lotus value-added reseller IT Factory Inc. in Cambridge, Mass., is shipping a suite of applications built on top of Notes with an integrated Web client. Swiss finance firm UBS Warburg LLC, a business group of Zurich-based UBS AG, built its own collaborative platform into a real-time portal for financial transactions from scratch.

That makes sense, said Dana Gardner, an analyst at Aberdeen Group Inc. in Boston. Business relationships are built on social relationships, he said, and a system in which the communication system is separate from the business functions is counterintuitive.

"You're not going to convert your ERP into Domino; you're going to want to convert your Domino into your ERP," Gardner said. "It's simply a function of every application not being complete unless it has communications functions embedded."

Lotus is already doing that to some degree, Levitt said, since Sametime, the company's instant messaging offering, is or will soon be embedded in several Web applications. Likewise, Microsoft is planning to ship its Mobile Information Server by midyear to provide Wireless Application Protocol access to Exchange data as well as to ERP and CRM data.

Perhaps the most telling indicator that communications and collaboration will become part of other products is the announcement two weeks ago that Lotus is planning a reorganization — a development that many observers expect to result in the company being more closely integrated with its parent, IBM.

"It is clear, based on the solutions that Lotus and IBM have jointly released over the last year, that the IBM sales force is interested in positioning the Lotus solutions as part of the IBM line," Levitt said. "That's all positive. . . . The product integration between IBM and Lotus occurring over the last several years is for the benefit of the customer."

MORE THIS ISSUE
Lotus mum about reorganization until Lotusphere 2001 **See page 30.**

Comdisco Closes Managed Network Services Unit

BY LUCAS MEARIAN

IT services company Comdisco Inc. announced last week that it is closing its managed network services unit because it hasn't met growth expectations.

The Rosemont, Ill.-based company said it will also cut about 96 jobs, or 3% of its 3,200 workers.

Of the company's 5,300 customers, only 37 purchased networking services, according to a Comdisco statement.

Keeping the unit open would have forced the company into a market of fast-changing technology where it would have to make "significant, ongoing investments in operations," said Phillip A. Hewes, Comdisco's interim president and CEO.

"With this decision behind us, we can continue to focus on and grow our key technology services," said Hewes, referring to Comdisco's continuity, Web-hosting and data-storage services.

Hewes took over as interim CEO of the technology services company after former CEO Nicholas K. Pontikes resigned in December. The company is conducting a search for a permanent CEO.

Comdisco added networking services to its business in 1995 but went up against stiff competition from other larger and lower-priced vendors.

"We will do everything we can to help our customers make a smooth transition," Hewes said.

Notes, Exchange And GroupWise?

Talk about collaboration and messaging, and Lotus and Microsoft own the discussion. Their products, Notes and Exchange, dominate the corporate messaging market.

Meanwhile, a small but loyal contingent of GroupWise users wonder why their product of choice isn't on the radar screen. GroupWise is the collaboration and messaging successor to WordPerfect Office from Novell Inc.

"Administering GroupWise really can't be much easier," said Tom Ross, GroupWise administrator at Fowler, White, Gillen, Boggs, Villareal and Banker PA, a Tampa, Fla., firm with more than 400 lawyers.

"I have easy-to-use tools available to repair user databases and post-office databases. I can run maintenance or repair on those databases on a regular schedule, in the middle of the night or during the day when need be. And to tell you the truth, I have zero production downtime," Ross said.

Dana Gardner, an analyst at Aberdeen Group, said GroupWise lacks little or nothing technically. Novell just failed to develop partner channels, which would have brought it to large enterprise customers.

"GroupWise has been somewhat withering on the vine because of some business issues rather than some technology issues," Gardner said.

"It's not always having the best product that wins the market," said Mark Levitt, an analyst at IDC.

"I think they are the Rodney Dangerfield of the industry," Levitt said, adding that perception has become reality. "There is little they can do to significantly reverse the situation."

– *Jennifer DiSabatino*


Opportunity no longer knock
These days, it darts past the
before you can even reac

sas

Continued from page 1

IT Scrutiny

tious" about how they spend their IT money, said Pat Cicala, president of Cicala & Associates LLC, an IT procurement consultancy in Hoboken, N.J.

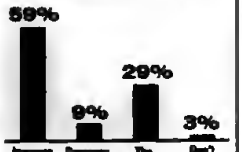
With as much as 70% of IT projects failing to get completed on time or live up to expectations, "there is a growing feeling among business and finance people that their companies are spending too much on technology, and they want to know why," Cicala said.

As a result, "only those expenditures that are directed toward efficiency and cost reduction will go forward. Those that don't have a demonstrable business case will fall off," said David Krauthamer, MIS director at Advanced Fibre Communications Inc., a manufacturer of telecommunications equipment in Petaluma, Calif.

Applications that automate manual processes — such as Web-based order and purchase administration, customer relationship management and sales force automation — will be reasonably strong, Krauthamer said. So, too, will be infrastructure investments in areas such as security, storage and network bandwidth.

IT Spending

Will your IT budget for 2001 increase, decrease or remain steady compared with 2000?



SOURCE: SEPTEMBER COMPUTERWORLD SURVEY OF 100 IT PROFESSIONALS AT COMPANIES WITH AT LEAST 400 EMPLOYEES

But there will be a limited business case for making large investments in ERP and business-to-business integration projects, where returns are less immediate, Krauthamer said.

"We are just trying to be a lot smarter about how we acquire technology across the board," said Kevin Berry, vice president of contract services at Wells Fargo Services Co. in Minneapolis.

The company expects to use the current economic slowdown to its advantage by trying to negotiate better contract deals from major suppliers, many of which are likely to face greater financial and sales pressure this year, Berry said.

With data center software licensing costs now overtaking hardware costs for the first time, "we are going to be putting more focus and energy [to bring down costs] in that area," Berry said.

The results of a survey of 150 CIOs that was conducted last month by New York-based Morgan Stanley Dean Witter & Co. showed that corporate IT budgets are expected to increase at a modest rate of 8% this year, compared with an average budget increase of 12% in 2000. And 16% of the respondents said their IT investments would decrease.

Indeed, in downgrading its earnings projections for the quarter late last week, Palo Alto, Calif.-based Hewlett-Packard Co. said many of its corporate customers are buying less because of the uncertain economic environment.

During the past two years, companies were in "so much hurry to get into the e-commerce space that they acquired hardware, software and services without caring about pricing, contract terms or vendor liability issues. ... That was crazy," said Joe Auer, president of Winter Park, Fla.-based procurement consultancy International Computer Negotiations Inc. and a *Computerworld* columnist.

With the economy slowing, "there are four things companies are going to be looking at this year: business need, cost, complexity and the risk" involved in a project, Auer said. "The days of just going out and buying things are over."

Will Slowdown Mean IT Bargains?

Can companies turn the current economic slowdown to their advantage by negotiating better technology deals from major IT suppliers, many of whom are likely to face greater financial and sales pressure this year?

The deals will depend on how big an IT spender your company is, who your major suppliers are and how well you do your homework before negotiating, according to analysts.

"As a rule of thumb, the buyer is going to have the upper hand, especially the larger companies," said Pat Cicala, president of Cicala & Associates.

The key is to remember that "you don't get if you don't ask," said Joe Auer, president of International Computer Negotiations and a *Computerworld* columnist. "If you don't hear at least one 'no' from your vendor, you haven't asked for enough" this year, Auer said.

Not everyone agrees.

"I think there may be some well-targeted opportunities available in certain areas, but it's still a vendor's market out there, and some of the hardest-hit are still not dealing," said Ditka Reiner, president of Reiner Associates Inc., a procurement consultancy in San Rafael, Calif.

"At quarter end and in some sectors, you might be able to make a good deal, but you have to know what you are doing. ... If you don't 'future-proof' your contracts, those deals can come back to haunt you," she cautioned.

"I am always looking for good deals," said David Krauthamer, director of MIS at Advanced Fibre Communications. "But so far, I haven't seen any vendors who are real desperate for deals or who seem to be nervous [about the slowdown]."

– *Jaikumar Vijayan*

Continued from page 1

Power Crisis

a division of Edison International in Rosemead, Calif., and Pacific Gas and Electric Co., a subsidiary of PG&E Corp. in San Francisco, have been forced to buy power normally priced at $30 to $50 per megawatt for as much as $1,000 per megawatt on the spot market. Both companies, especially PG&E, are in a financial crisis.

But PG&E spokesman Scott Blakey said the state's power need is more dire. "If we don't get juice in here and the ability to move it around, we're going to be in trouble," he said.

The situation has become so desperate in the region that Intel Corp. CEO Craig Barrett said last week that his company wouldn't build another semiconductor plant in the state until it's resolved.

Utilities have cut power to consumers and businesses on short notice in predetermined areas. One such so-called rolling blackout affected Digital Think, an application service provider in San Francisco, last week, but its IT equipment wasn't affected because it's hosted by Exodus Communications, said Kevin Cornish, IT director.

Internet data centers contacted for this story said they haven't been affected so far. The reason, said Chris Hardin, director of Santa Clara operations at Exodus Communications Inc., is that companies sign contracts that call for power companies to deliver electricity that the customer must pay for even if it doesn't use it.

"It's like a lunch. If you order it and don't like it, you're going to pay for it anyway," Hardin said. But he noted that to ensure power for its customers, Exodus is looking at options such as local power generation.

Preparing for data center power demands is unlike anything utilities have faced. "Internet data centers are a blueprint for 60 megawatts of power coming [into] service in 60 days. That's the equivalent of a steel plant, which you can see coming a year in advance," said William M. Smith, manager of market-driven load management at EPRI, the electric utility industry's research arm.

However, that demand could "disappear in three or four years," Smith said. Palo Alto, Calif.-based EPRI estimated that it takes 20 years for a power company to amortize the costs of building power plants.

Roukeme said Silicon Valley Power's load could double in the next two or three years, with 80% of those new requests coming from Internet data centers.

Old Ways Wearing Out

Before the current crisis, California slaked its thirst for power by buying excess electricity from areas like Nevada and the Pacific Northwest.

According to Smith, Las Vegas-based Nevada Power Co. and the Bonneville Power Administration in Portland, Ore., have had to cut back sales to serve the phenomenal growth in demand from Las Vegas and because of environmental restrictions on the Columbia River that cut hydroelectric power output.

Some disagree with those who attribute the crisis to data center expansion and other demand growth.

"We think that the crisis stems from poorly planned deregulation legislation, not from a supply shortage," said Susannah Churchill, an energy associate at the California Public Interest Research Group in Sacramento. Similarly, Gov. Gray Davis last week blamed deregulation in his State of the State speech.

Yet others said they agree that the Internet is a contributing factor. Bob Hepple, president of Calpine cPower Inc. in Pleasanton, Calif., said Internet data centers are the fastest-growing market segment for electric load demands among commercial industries.

"They're expanding at 13% to 14% vs. the normal 2% growth," he said. His company, which was launched last May, builds and operates on-site power and cooling plants for data centers.

California, which uses more than 260,000 gigawatts of power per year, consumes more energy than Italy and is the first state to feel the crunch, according to Smith.

"There is no safe haven," he said. Regions most at risk are those that have an optical network hub for the Internet, such as Seattle and Phoenix, where population pressures are increasing with the number of data center installations.

Power companies in the Northeast and Midwest are somewhat better prepared, said Michelle Schofield, vice president of corporate marketing at Silicon Energy Corp. in Alameda, Calif. That's because they have better load management tools than California suppliers, which, until the recent burst of Internet data center growth, were protected by the relatively mild climate and didn't need to accommodate power-intensive air conditioning and heating systems.

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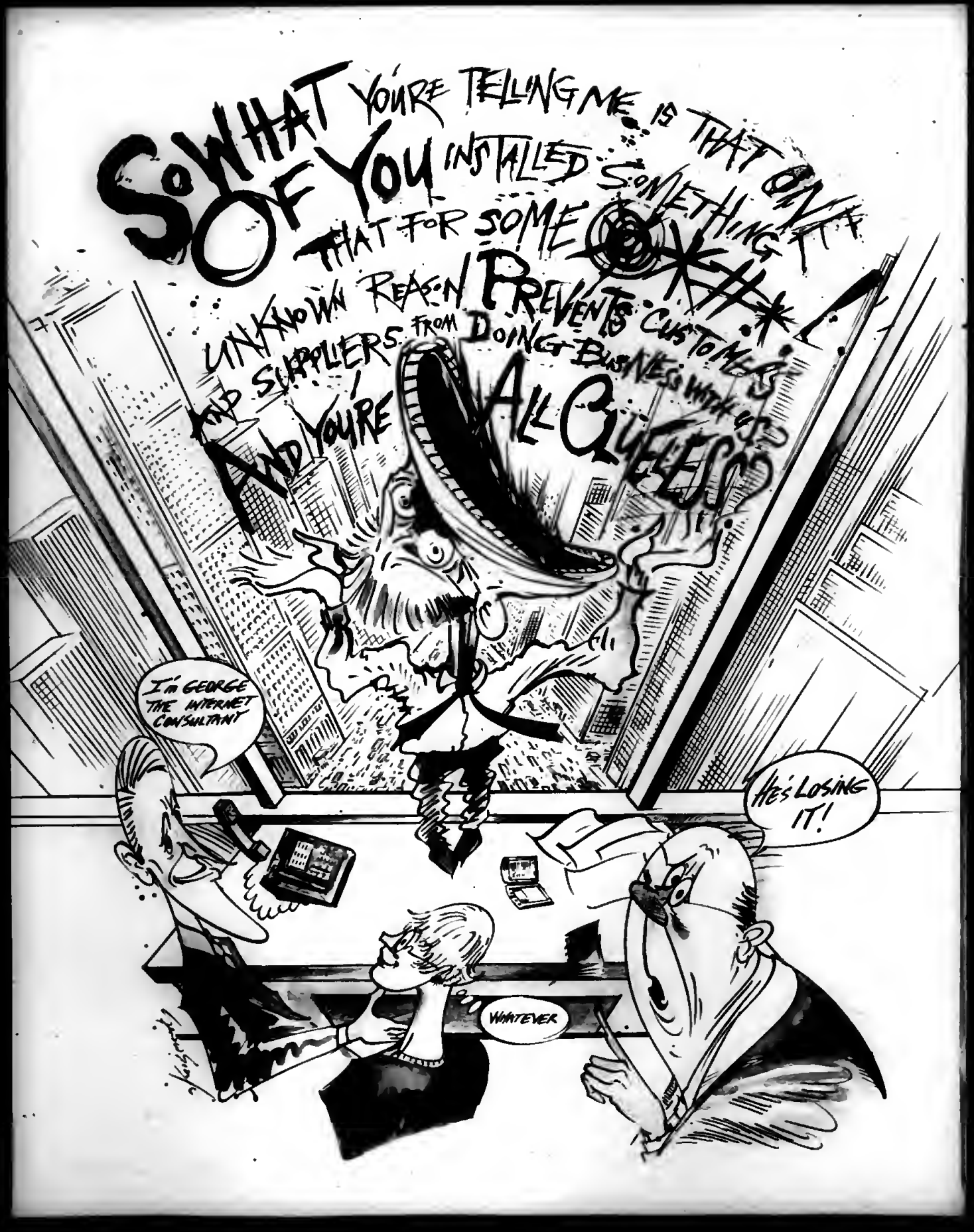
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Software Conversion Creates Chaos for Spirit Airlines

CEO: System worked, but employees weren't ready to use it in crisis conditions

BY MICHAEL MEEHAN

A PROBLEMATIC conversion to a new software system for managing staff and tracking flights grounded flight operations at Spirit Airlines Inc. to a New Year's halt, resulting in passengers stranded in cities such as New York, Detroit and Palm Beach, Fla.

The systemwide problems forced the Fort Lauderdale, Fla.-based discount airline to book all available hotel rooms in many markets and to institute a nationwide disaster response program.

Spirit Airlines President and CEO Jacob Schorr said the crisis wasn't touched off by the new system crashing or other technical problems. Instead, the problems were caused by a lack of familiarity with the software on the part of Spirit's employees — a situation that snowballed at the airline after winter storms affected air travel in the Northeast.

Slow Users, No CIO

While the new scheduling system had been run in parallel with the airline's old one from September through the end of last year, Schorr said users couldn't negotiate the software fast enough to keep pace after the storms began forcing flight cancellations.

"The people who operated the software were no longer as fast with it, even though they were proficient and they were trained," Schorr said. "It's one of those situations where your fingers aren't connected to your brain anymore, and we weren't prepared for that."

Flights were also booked to capacity because of the crush of holiday travelers, making it more difficult to accommodate stranded passengers after the problems emerged, he said.

Compounding the situation even further was the fact that Spirit's CIO post is vacant, said Schorr, who held that position until he was promoted to CEO in mid-2000. The airline began interviewing potential CIO candidates last month but has yet to hire a replacement.

A hands-on IT executive might have been able to foresee the impending crisis and steer Spirit's crew staffing department away from doing the software conversion at such a busy travel time, Schorr said. "The only way we could have avoided this problem was to have called off the conversion," he said. "But we obviously didn't see the problem coming."

Henry Harteveldt, an analyst at Forrester Research Inc. in Cambridge, Mass., who follows the travel industry, faulted Spirit for its timing. "You never want to do a cutover to a new software system during a peak travel period," he said.

Spirit's staffing department wanted the conversion to occur Jan. 1 because the airline needs to track pilot and crew flight hours on a calendar basis in order to ensure that workers don't exceed flying limits set by the Federal Aviation Administration. Making the switch a week or two later would have required the initial records for this year to be moved from the old system to the new one.

JACOB SCHORR, CEO at Spirit: "We weren't prepared" for problems.

"Up until now, it's been our policy to let individual departments manage their own projects and not involve [the IT department]," Schorr said. "That's going to change. We need to have our tech people more involved."

Harteveldt said such a hands-off IT policy is a recipe for danger. "You don't mess around with technology," he said. "It is not kind to the people who don't understand it."

Schorr said the airline will have to spend at least the rest of this month trying to win back passengers who were inconvenienced by the problems. Spirit, the largest privately held airline in the U.S., carried more than 200,000 passengers last year.

The airline will also have to mend its relationship with the New York & New Jersey Port Authority, which is considering pulling Spirit's landing permits at the LaGuardia and Newark airports in the wake of the ordeal.

Port authority spokesman Steven Coleman said that at one point, New York police were called to LaGuardia to calm an unruly crowd of disgruntled passengers. "There were some near fistfights between some of the passengers who'd just had enough," he said.

The crisis also will lead to organizational restructuring at Spirit, Coleman said, although he added that specific changes haven't been decided on.

A week ago, the airline announced that it had returned to "business-as-usual operation." Schorr said the new software remains in place. "It was a matter of knowing how to use it," he said.

Survey: Above All Else, IT Workers Need Challenge

Recruitment, retention methods called 'paramount'

BY PATRICK THIBODEAU

Companies that want to keep their IT employees happy should focus on providing challenging work and making sure they don't hire managers like those in the comic strip "Dilbert." That's according to a survey of the hiring and retention practices at more than 500 high-tech companies that was released last week by the American Electronics Association (AEA).

Employee recruitment and retention techniques "are of paramount importance" because of the tight IT labor market that companies face, said Marc Brailov, a spokesman for the Washington-based AEA. But it's becoming more expensive to retain high-tech staff, according to the survey: Respondents reported average IT salary increases of 8%, up from 6.8% a year ago, Brailov said.

The survey also found some disparity between the most prevalent recruitment and retention tools and the ones that were cited as being most effective. For example, tuition and training reimbursement were ranked third on the list of most widely used techniques for retaining workers but only placed 10th in effectiveness, according to the AEA.

On the other hand, rewarding workers with additional vacation time ranked high in retention effectiveness, but it didn't even make the list of the most prevalent practices used by the participating firms.

Negotiating Results

Vince Gabriele, director of global staffing at software vendor MicroStrategy Inc. in Vienna, Va., said he wasn't surprised that a challenging work environment ended up at the top of the survey's effectiveness rankings. "The ability to create opportunity in your own organization and allow people the ability to move [up] — that is a pretty big retention tool," he said.

MicroStrategy lets qualified employees change jobs within the company every 12 months. That policy is based in part on Gabriele's own experience: At a company where he worked for nine years, switching to a different position was frowned upon. "We lost so many people because they wanted to try something new in their careers and the managers wouldn't allow them to go," he said.

The job-changing policy at MicroStrategy is coupled with an in-house university program that provides interested workers with "real-world training," Gabriele said, adding that he views that kind of training as more effective than tuition reimbursement programs for employees who seek education outside a company.

But according to Bruce Tulgan, a training and human resources consultant at RainmakerThinking Inc. in New Haven, Conn., the best thing companies can do to ensure that they get the right people is to hire employees as "free agents" under deals that require them to produce agreed-upon results to get promised perks. That can help firms avoid the no-win game of offering IT workers an "open-ended deal" laden with retention-oriented incentives, Tulgan said.

"What I think is a far more savvy approach for [IT] managers and business leaders is to negotiate real results in exchange for those rewards," he said. "Then it's not a sucker's game."

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2	Favorable work environment
3	Flextime
4	Stock options
5	Additional vacation time
6	Support for career/family values
7	Everyday casual dress code
8	High-quality supervision and leadership
9	Visionary technical leadership
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Feds Say Ciao to Father of the CIAO

Cybersecurity expert has suggestions for new administration

WHEN THE Clinton administration leaves office this week, the federal government will say goodbye to one of the national security community's premiere experts on cybersecurity policy.

On Jan. 20, **Jeffrey Hunker**, the senior director for critical infrastructure protection at the National Security Council, will end a seven-year stint in public service.

What started as a serendipitous move into a senior policy advisory role under Secretary of Commerce Ron Brown in 1993 soon led to an assignment to create a new national security organization that would be at the forefront of the nation's cyberdefenses. In 1998, that organization became known as the Critical Infrastructure Assurance Office (CIAO).

Computerworld's Dan Verton recently sat down with Hunker in his office in the Old Executive Office Building adjacent to the White House. Here's what Hunker had to say about the future of the national effort to protect cyberspace.

Q. What should the Bush administration do differently to make the critical infrastructure protection effort more effective?

A. Part of the challenge is going to be working to educate Congress, ensuring there is budget responsibility and accountability within the executive branch and, equally important, actively working with the insurance and audit industries to integrate the issue of cybersecurity into the corporate risk management framework.

One of the biggest shortcomings in security right now is that there is no commonly accepted set of best practices. One of the things that the federal government should do is adopt a set of defined network security best practices — not just on paper, because there is plenty of guidance. They should then encourage their adoption in the private sector as well. If we do that, it would help jump-start the insurance market as well.

Also, we have virtually no pipeline producing trained cybersecurity experts at this point. Addressing the nationwide shortage of those people needs to be done very close to the top of the next administration.

Q. What have you learned about the government/industry partnership?

A: I'm struck by how new and challenging the issue of cybersecurity is. The government is not organized to deal with a crosscutting issue like this.

Many of the approaches to developing partnerships don't exist, and you have to build them from scratch. I've also learned that it takes a long time to build an operating partnership with the private sector.

Q. What are some of the most significant issues in security that the new administration will face?

A: I look at developing a legal structure as perhaps one of the most important foundational elements in the future of cybersecurity.

For example, while there are reconstitution authorities that the federal government uses whenever we have an earthquake or a hurricane, there's substantial controversy about whether the federal government in fact has legal authority to provide reconstitution support in the event of a cyberfailure.

Likewise, we don't have a legal structure that can determine how you assign liability for network failures.

We also need to formalize at the highest levels of the government the working partnership between government and corporate executives.

We need to formalize the National Infrastructure Assurance Council and start having meetings between corporate CEOs and the president on this issue. It's time that we bumped it up to a president-and-CEO issue. ◗

FBI Completes Cybercrime Program Rollout

But future uncertain with Bush coming in

BY DAN VERTON

The FBI has officially announced the formation of its InfraGard program, a cybercrime security initiative designed to improve cooperation between federal law enforcement officials and the private sector. The announcement came earlier this month after the agency completed the process of setting up InfraGard "chapters" at its 56 field offices.

The National Infrastructure Protection Center (NIPC), an FBI affiliate that's based at the bureau's headquarters in Washington, started the InfraGard program five years ago as a pilot project in the Cleveland area. An FBI spokesman last week said that the last local chapter, comprising information security experts from companies and academic institutions, was put in place last month in New York.

According to the FBI, InfraGard offers firms an intrusion-alert network based on encrypted e-mail messages, plus a secure Web site for communicating with law enforcement agencies about suspicious network activity or attacks.

But the NIPC has been criticized in the past for what some have called a "fundamental inability to communicate" with the rest of the national security community. The problem, according to sources, has been that the FBI treats all potential cybercrimes as law enforcement investigations first and foremost — a stance that essentially bars access to information by other security agencies.

John Pescatore, an analyst at Stamford, Conn.-based Gartner Group Inc., said the timing of the announcement may be a sign that the FBI is jockeying for budget influence in a future Bush administration. The InfraGard program "hasn't had much of an impact" on corporate users thus far, he added.

"It seems like the different chapters are very personality-driven," he said. "But the FBI hasn't really institutionalized [InfraGard] or funded it to be anything very meaningful. The general feeling ... is that it is all input to the FBI and no output from them."

Too Little, Too Late?

Steven Aftergood, director of the Project on Government Secrecy at the Federation of American Scientists in Washington, called the InfraGard announcement "one of several rather belated efforts by the Clinton administration to create new security structures."

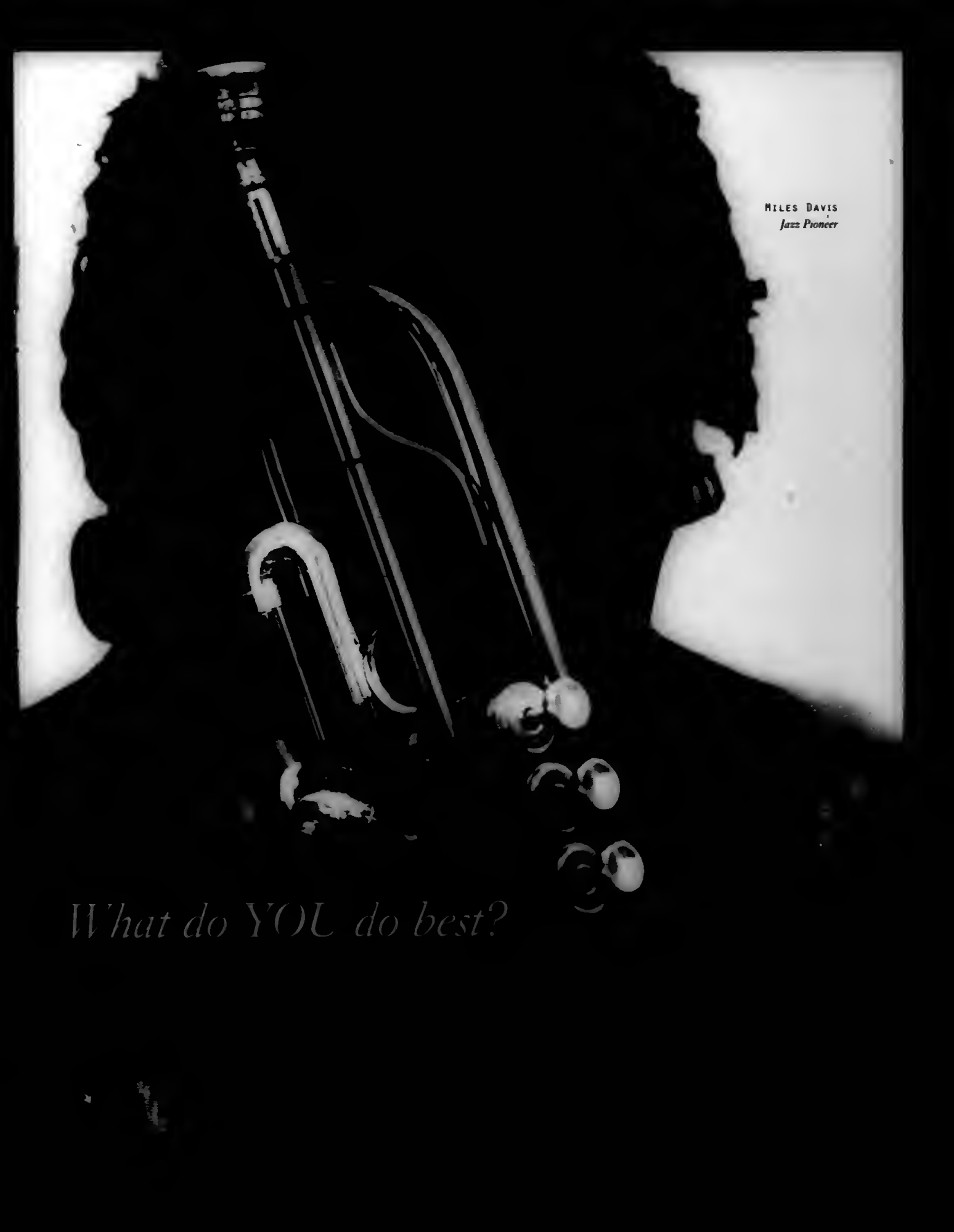
For example, President Clinton announced on Jan. 5 a plan to better coordinate federal counterintelligence efforts — a move aimed partly at improving the response of agencies such as the FBI and the CIA to information security attacks against companies.

But InfraGard's prospects could still be very much in question after George W. Bush takes over as president, Aftergood said. "All of these initiatives could die if the Bush administration wants to place its own imprint on the issues or simply decides to take a different tack," he said.

The FBI spokesman said the agency plans "to expand and perfect" InfraGard as it goes forward. More than 500 businesses have already signed up to participate in the program, and the FBI is "still getting applications daily from companies that want to be part of [a chapter]," he added.

InfraGard does have its supporters. Bill Malik, an analyst at Gartner Group, said the program lets companies share information on security vulnerabilities without creating the level of hysteria that usually accompanies highly publicized reports of cybercrimes.

"It's actually working," Malik said. "There's an awful lot of industry support behind it." ◗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With Merger of Aggregators, Prices Could Rise for Banks

Market narrows for offering single view of finances

BY MARIA TROMBLY

THE MERGER between financial account aggregation giants Yodlee Inc. and VerticalOne Corp. may make life harder for smaller competitors and increase costs for the banks and other institutions that buy the service. But it could also spark innovation in add-on financial information services for consumers, analysts said.

According tn Yodlee spokeswoman Melanie Flanigan, the merger will be finalized this month. Atlanta-based SI Corp., VerticalOne's parent company, will own 32% of the combined entity, with VerticalOne folded into Redwood Shores, Calif.-based Yodlee.

Banks will now have only one major vendor that provides the service that lets people see all their account summaries on one screen, regardless of which institution holds those accounts. The merger may also mean higher costs because the price war between Yodlee and Atlanta-based VerticalOne will be over, according to Octavio Marenzi, an analyst at Celent Communications LLC in Cambridge, Mass.

The prices for aggregation services shouldn't increase much, said Marenzi, but special discounts will disappear. Customers usually don't pay for the service, which is offered as part of an online banking or brokerage package.

The merger may also pose difficulties for smaller aggregation providers, which will have a harder time competing against the combination of Yodlee and VerticalOne.

"There's a comfort level in going with the market leader," said Christine Barry, an analyst at Newton, Mass.-based Meridien Research Inc. "What the smaller players will be forced to do will be to carve out a nicbe for themselves."

One of those smaller players is Digital Insight Corp. in Calabasas, Calif., which hosts Internet banking applications for 1,155 U.S. financial institutions. Digital Insight, which serves smaller banks that Yodlee and VerticalOne have virtually ignored so far, also offers financial planning, private-label portals, and electronic bill presentment and payment, said Katherine Jansen, the company's director of market strategy.

Anotber company, GainsKeeper Inc. in Quincy, Mass., offers a financial planning application bundled with its account aggregation that lets customers calculate their capital gains taxes and prints out a completed Schedule D.

> [Other aggregators] aren't doing any analysis, and that leaves a nice door left open for us.
>
> DUNCAN ROUTH, CEO, GAINSKEEPER

"We're going one step forward from other aggregators," said co-founder and CEO Duncan Routh. "They aren't doing any analysis, and that leaves a nice door left open for us."

But Flanigan said Yodlee plans to partner with application providers in the next few months in order to introduce innovations such as electronic bill payment and presentment, as well as private-label portals for financial institution customers.

Ameritrade, J.P. Morgan to Lay Off Employees of Online Operations

Ameritrade cites market; Morgan fingers merger

BY MARIA TROMBLY

Online brokerage Ameritrade Holding Corp. said last week that it will lay off more than 300 of its 2,500 employees, while Morgan OnLine confirmed that it will lay off about 150 of its approximately 400 employees.

The announcements came in the wake of a spending freeze at San Francisco-based Charles Schwab Corp. last month and a general decline in the stock market. Analysts said the brokerage industry has been due for consolidation, particularly in online trading.

"People have been more hesitant about what they want to buy or what they want to sell," said Larry Tabb, an analyst at TowerGroup in Needham, Mass. He predicted that there will be even more consolidation. "It's a cleansing mechanism," he said.

But Mary Sedarat, a spokeswoman for New York-based J.P. Morgan & Co.'s Morgan OnLine unit, said the layoffs at Morgan aren't due to the state of the market but to the recent merger with Chase Manhattan Corp. Previously, she said, the Morgan OnLine product was a separate service sold to high-net-worth customers. Now, the online product will be offered as a part of the whole package, and the sales staff is superfluous, she said.

"The layoffs came from the sales and marketing side," Sedarat said. "The people who build it, design it and dream it are still in place." Some of the people to be let go will be offered other jobs within the company, she added.

Downturn Hurts Ameritrade

Meanwhile, Omaha-based Ameritrade, which has been without a CEO since August, announced new numbers that show that it's feeling the impact of the market's downturn. The company estimated that its loss per share for the first quarter of this year will be between 12 and 14 cents.

However, the brokerage also said in a statement that it continues to gain customers. Last month, 52,000 new accounts were opened, compared with 40,000 in November, the company said. Volume was at an average of 115,000 trades per day, compared with 105,000 trades per day a year earlier. This is a drop, however, from a peak of 173,000 trades per day last March.

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BRIEFS

Adero Enters $23.5M Deal With Inktomi

Adero Inc. has sold some of its technology and licensing some intellectual property to Inktomi Inc. in Foster City, Calif., as Waltham, Mass.-based Adero can focus on its GlobalWise services for carriers. Adero said it will receive $23.5 million in cash for the billing, settlement and traffic-reporting assets of Content Bridge, which Inktomi will now operate. Content Bridge is a vendor alliance to speed content delivery to Internet users.

CA to Spend $100M To Tout E-Business

Islandia, N.Y.-based Computer Associates International Inc. last week launched a $100 million advertising campaign in an attempt to change the firm's image among IT managers from framework software company to e-business management vendor. Although the campaign, a pet project of CEO Sanjay Kumar, follows two quarters of disappointing sales, it has been in the works since last summer, when CA founder Charles B. Wang stepped down as CEO.

Oracle Adds Linux 2.4 Support to 9i Server

Oracle Corp. is adding support for the new Linux 2.4 open-source operating system kernel to its Oracle9i application server and Oracle9i database, the company said. Oracle said that it's the first software firm to offer support for the much-anticipated kernel. The company has been touting its efforts to make its entire software portfolio Linux-compatible, having decided as early as February 1999 to upgrade Linux to a "Tier 1" platform in its operating systems strategy.

Short Takes

Taking top honors for the eighth year in a row, IBM was granted the most U.S. patents last year and outdistanced the nearest competition by nearly 900 patents, a new study says. . . . AMAZON.COM INC. in Seattle said last quarter's sales will be more than $900 million, a 40% increase over the same period in 1999.

Lotus Mum About Reorg Until Lotusphere

Speculation centers on increased IBM role

BY JENNIFER DiSABATINO

With a somewhat cryptic announcement more than a week ago, Lotus Development Corp. officials confirmed that the company is reorganizing but refused to elaborate.

A Lotus spokeswoman dismissed speculation that IBM is finally bringing its subsidiary completely into the fold, but some people with close ties to the company said they aren't so sure. And if that does happen, it wouldn't be a bad thing, they said.

Lotus officials said information about the reorganization will be made available this week at Lotusphere, the company's annual users conference in Orlando. Two weeks ago, employees received an e-mail from Lotus President and CEO Al Zollar to inform them that there would be a reorganization at the company, but he didn't provide any details.

A Good Thing

"I'm happy that restructuring is occurring," said David Shimberg, chief marketing officer at Lotus' largest value-added reseller, IT Factory Inc. in Cambridge, Mass. "Lotus as an organization has not been in a position to respond to partners and the market in a way that we'd like to see happen."

If the restructuring brings Lotus closer to IBM management, that's all the better, Shimberg said. As for denials that IBM will totally absorb Lotus, he said that the growing number of former IBM employees now on Lotus' payroll says something to the contrary.

"I believe it's not an issue of [whether they are] going to be folded into IBM — it's a question of the time line and the timing," Shimberg said. "I think it's a good thing. I don't see it as a thing we should view as negative."

The most notable IBM employee to move to Lotus is Zollar. At Lotusphere last year, Zollar denied rumors that his appointment heralded the end of Lotus.

A 23-year veteran at IBM, Zollar left his position as general manager of the company's network computing software division to take the top job at Lotus Feb. 1 last year, succeeding Jeffrey Papows.

The reorganization may not mean the end of Lotus but rather the end of Lotus as we know it. With a huge installed base of between 65 million and 70 million Notes seats, Lotus needs to start acting more like a big business, with an emphasis on service and consultancy, and less like a maverick technology developer, said David Ferris, head of Ferris Research in San Francisco.

LOTUS CEO Al Zollar gave no details of the reorganization.

That shift wouldn't necessarily kill the rebel programmer culture at Lotus, Ferris said. IBM has done a good job of accommodating the diverse workstyles within its corporate culture, but it will mean a different way of dealing with partners and clients on the outside, he said.

"I suppose it probably would be appropriate for changes there," Ferris said. "Lotus is very successful; it would be appropriate for it to become more and more a customer-solutions-oriented firm, moving away from the enthusiastic individualism into [a company that has a] more measured, consultative stance toward clients."

Shimberg said he's hopeful about a potential change. "If you look at IBM, they have understood key partners in key markets, and they have understood how to work with key partners," said Shimberg. "Lotus has principally played lip service to partnering."

AT&T Lights Up High-Speed IP Backbone

More bandwidth could mitigate costs

BY JAMES COPE

In a move analysts said other telecommunications firms will likely follow, AT&T Corp. announced last week that it has turned on its OC-192 coast-to-coast IP backbone. The high-speed link is used to pump data for AT&T customers at 10G bit/sec. along optical fiber that runs from Massachusetts to California.

According to Stephen Harris, an analyst at IDC in Framingham, Mass., most large carriers already have OC-192 segments running on their networks, either for testing or actually handling traffic. But, he said, AT&T is the only one be is aware of that has fully implemented a coast-to-coast OC-192 IP backbone.

"This is the first production implementation of a coast-to-coast backbone running at this speed," said AT&T spokesman William Hoffman.

Prior to the AT&T implementation, the fastest cross-country links were 2.5G bit/sec., or OC-48, transports.

Harris noted that the ability to carry more data over faster backbones could mean a cost benefit to large business customers over time. However, he said, it remains to be seen whether AT&T and others will pass the savings along to their customers.

Hoffman said that it would be difficult to directly attribute end-user savings to the rollout of the OC-192 backbone but that there are "significant efficiencies of scale" in deploying high-bandwidth backbones vs. installing many smaller network pipes. Having plenty of bandwidth available, he added, does moderate the cost of using it.

High-Speed IP

BANDWIDTH:
OC-192 (10G bit/sec.)

ROUTE:
- Cambridge, Mass., to New York
- New York to Chicago
- Chicago to St. Louis and San Francisco
- St. Louis to Los Angeles

Hoffman said AT&T's OC-192 backbone runs from Cambridge, Mass., to New York and from New York to Chicago, where it then forks to St. Louis and San Francisco. There's a leg that runs from St. Louis to Los Angeles, too, he said.

IP Backbone Growth

Over the next three years, "most of the growth [in IP backbone infrastructure] will be in higher-speed pipes," according to Daryl Schoolar, an analyst at Cahners In-Stat Group in Scottsdale, Ariz. A Cahners In-Stat study released last week forecast compound annual growth of 27% for new construction of OC-192 IP backbones and 46% for OC-48 backbones between now and 2004.

In the same announcement, AT&T officials said the company will add eight data centers this year. Most of them will be located in the U.S., but at least one will be located in another country, according to AT&T sources.


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PATRICIA KEEFE

Wake Up!

JUST WHO ARE these CIOs who claim their networks are secure? Are they crazy?

I have to wonder. Because if there's one thing we can be sure of, it's that virtually nothing is secure. Not your identity, not your cell phone number and certainly not your computer.

Heck, the U.S. government can't even find some of its laptops, never mind secure its computers. The pros never get caught, so however bad we think computer security is, it's actually a lot worse. And the wireless revolution is going to expose weaknesses we don't even know we have.

Patricia Keefe is Computerworld's editorial director. Contact her at patricia_keefe@computerworld.com.

Pretty scary stuff, I'd say. And yet, last week we wrote about a recent poll of 1,400 CIOs, in which 91% said they were confident that their networks were secure [Page One, Jan. 8]. Say what? That statistic left security experts and CIO peers sputtering in disbelief. The consensus was, "They can't be that clueless; they must be protecting their jobs." But will blustering bravado really safeguard their paychecks?

"The most important thing a CIO can pay attention to is security," notes an amazed CIO, David Cooper, at Lawrence Livermore National Laboratory. He said he thinks many of his peers "just don't get it." What they don't seem to get is that getting hit by a hacker, viruses and electronic theft are incredibly expensive. A survey of 273 companies last year by the Computer Security Institute had 74% reporting combined losses of $266 million. Datamonitor claims that online security breaches last year cost companies more than $15 billion in damages worldwide. This is the tip of the iceberg.

It's not just the money. Stolen, corrupted, lost and misused data is a huge issue, as is a shift toward more malicious damage. Experts are warning about a switch from show-off hacking to more sophisticated "hacktivist" incidents that go well beyond Web page defacements. Read the headlines: Undernet, Creditcards.com (now iPayment Technologies), eBay, Nasdaq, Egghead, NASA, Sandia National Laboratories — all hacked in recent months.

The only real way to protect your job is to face the music. Unless CIOs are committing serious dollars, installing technical safeguards and deploying a continuing employee education program, they'll be out the door. So heed the wake-up call and IT security checklist in the IT Agenda supplement to our Jan. 1 issue. And don't just pull up the drawbridge. When a breach does occur, notify law enforcement. Work with the FBI through its newly launched InfraGard program.

Remember: This is no time to be smug. ▶

PIMM FOX

Breaking Outside The Career Box

IT'S NO JOKE that today's IT environment invites specialization and concentration in a way that can rob you of even *thinking* you could have another career. Even with all the talk about advanced education or the strategic importance of IT inside a business, chances are your path is pretty much determined by the marketplace for IT talent. Moving from software engineer to senior software analyst is a much more well-traveled path than breaking out and running, say, a venture fund.

So why do people tell me that IT professionals ought to have a broader outlook, a larger-scale vision of the future? What good could it possibly do?

Pimm Fox is Computerworld's West Coast bureau chief. Contact him at pimm_fox@computerworld.com.

Kevin Oldham, a divisional president at Raging Mouse, a San Francisco-based IT recruiting company, says IT folks have the potential to move into business positions, but it rarely happens.

Why? Maybe because IT pros are too busy staying on top of the latest programming environment.

Oldham says employers are so specific in their requirements that your breadth of knowledge and experience sometimes is irrelevant. "When they want a Java programmer or data center manager, that's what employers want," he says. "They aren't looking for someone who wants a broad business career."

Which is why I was confused when I met John Couleur, director of the Intel 64 Fund. The venture fund, based in Santa Clara, Calif., has about $250 million of investors' money to allocate to technology ventures for servers and workstations using IA-64 architecture.

I expected Couleur to come equipped with experience at another venture operation, or at least a nice MBA or law degree from some top-flight university. But he turned out to be a techie in nice clothing. With a bachelor of science degree in systems engineering from the University of Arizona and 20 years at Intel, Couleur's background is strange because it has all the hallmarks of an aspiring CIO: manager of systems architecture for Intel's IT organization, manager of a data center and help desk management.

So why is *he* deciding where Intel and other fund investors from among the Fortune 500 put their money? "I am definitely the exception," says Couleur, who has been in his job six months.

Part of it is his IT background. "The fund wanted someone with IT experience in order to better evaluate technology we might invest in," he explains. But more than that is his willingness to try

something new. "I sort of knew what the fund did, but I was from IT. I eveo had to learn that spending money wasn't a bad thing," he says, smiling.

So, despite the realities of the IT tunnel, doo't wait until you're bored to chart a different career route. After all, you too might have the verve — and talent — to run a venture fund but just doo't know it.

NEWT GINGRICH

Bush Faces Two Top IT Challenges

THE BUSH administration will face two significant information policy challenges. How they're resolved will have a substantial impact on our lives over the next several decades. Indeed, if both are handled badly, the U.S. could cease being the world leader in information technologies. But if they're handled correctly, the administration could create a legacy of having allowed technology to solve many problems.

The first is encryption. We're entering a world in which there are increasingly more codes that are extraordinarily hard to break. This will continue until quantum computing is developed, in which case virtually any code — at least theoretically — could be broken in seconds.

National security agencies rely heavily on code breaking and eavesdropping to deal with such threats as spies, terrorists and drug lords. The agencies have persuaded several administrations to embargo the exporting of U.S. encryption capabilities, but virtually no one in the IT industries believes this is a winning policy. In fact, most experts believe it's leading to the development of highly capable overseas encryption centers that probably wouldn't have been developed for many years — if ever — if the U.S. had been allowed to export its capabilities.

of the U.S. House of Representatives from 1995 to 1999, is CEO of The Gingrich Group (www.newt.org), a management consulting firm in Atlanta.

We need a new approach to encryption that recognizes that the technological genie is out of the bottle, and our security agencies need to develop new techniques to make up for an inevitable loss of information. Furthermore, we should allow U.S. businesses to compete in the global encryption industry, which is a necessary industry for the Information Age. This is, after all, largely about encrypting bank information, medical records and other legitimate commercial and personal secrets.

The second challenge is data privacy. We're oo the edge of major decisions in this area that could have a crippling effect on our information systems if implemented the wrong way. If implemented correctly, we could open up unforeseen markets and industries and improve the quality of life for millions of Americans.

We have many reasons to want privacy and many reasons to want to share information. For instance, I want the details of my checking account to be private. But I want every ATM in the world to be able to find my account, verify that it's mine and verify that there's enough money in it to give me the cash I want — at any time of any day. Furthermore, we want that system to operate within seconds from anywhere in the world.

There's a grave danger that privacy theorists will create a system so bureaucratic and expensive that the enormous opportunities for many kinds of information will be squandered. But it doesn't have to be that way. This is an area in which the actual practitioners making the system work must be consulted by Congress and the administration to help shape rules that protect privacy and our future ability to use information to improve our lives.

There's some danger that recently adopted health privacy rules may be too bureaucratic, even if well intentioned. If those rules slow the development of accessible electronic medical records, they could cost thousands of lives over the next few years. But if we harness our technology and put it to good use, we can save tens of thousands of lives that are normally lost every year when patients are misdiagnosed because doctors don't have instant access to electronic medical records.

We must protect privacy while encouraging progress in developing and using information. Historically, Americans have been very good at pragmatically developing systems that work even if they don't meet an ideological or theoretical purity standard. We need to apply that common sense to privacy.

These issues will have a profound effect on our economy, our health system and our quality of life during the next few years. They will be areas of real challenge for the new administration and Congress. If they're handled correctly, we could be on the verge of another big breakthrough in technology's impact on our lives.

READERS' LETTERS

Friend or Foe?

YOUR characterization of former Sen. John Ashcroft as "friendly to IT" seems to be based on a narrow interpretation of his record, almost entirely due to his position opposing the Clinton administration's restrictions on the uninhibited sale of encryption technology to foreign powers ["Attorney-General Nominee Viewed as Friend of IT," *Computerworld.com*, Jan. 5]. Some positions not included in your article that might also be relevant:

- What was Ashcroft's position on relaxing visa restrictions for technically qualified positions?
- What was his position on the use of monopoly power to quash innovation in IT and other technical fields?
- What was his position on increased funding to the National Science Foundation for pure research?

Basing a political opinion on a single technical position is the kind of reporting I expect from my community newspaper, not *Computerworld*.

Ben Burrows
Elkins Park, Pa.

Delays Not a Problem

THERE ARE many differences between open project development and proprietary software development ["Long-delayed Linux Kernel Upgrade Slips Again," *Computerworld.com*, Jan. 2].

In open software development, a release isn't a big deal. People can watch the development progress. The developers typically announce a release when they feel that it is time to move on to the next round of development. For example, there are a lot of people now using versions of the 2.4 Linux kernel, and some of the high-profile Linux distributions already include a version of the 2.4 kernel. The kernel is "done" when it works for you.

Phil Cameron
Software Resource Inc.
Winchester Mass.

LAST YEAR, columnists pounded software companies for their "release now, fix later" policies. Companies and users that need the features and functions of 2.4 need them to work right the first time. Linux kernels do not have, nor should they ever have, hard release dates.

Charles E. Hill
Core network engineer
Lucent Worldwide Services
Deltona, Fla.
hillc@lucent.com

Ah, Memories

EVERYTHING old is new again ["The Next Step in RAM Tech," Jan 8]. We used to have magnetic RAM back in the '60s, only we called it "core memory." MRAM is a miniaturized version of the old hand-wired core planes. Semiconductor memory, despite its size and speed advantages, was in many of the ways you mention a big step backward, and I'd be glad to see MRAM in wide use.

Peter Flass
New York State Legislative Bill Drafting Commission
Albany, N.Y.

Ignore Overwork Hype

MARYFRAN Johnson's column of Dec. 18 msde some excellent points about "the yawning gap between hype and reality" in the IT world ["Spinning It Down," News Opinion]. Unfortunately, while attributing part of the problem to sheer exhaustion, she referred to a recent study that found that "IT professionals are spending 30% more time at work than they did a year ago."

That number is plainly goofy. On an industry-wide basis, the number of hours worked would never change that drastically except for a national emergency. As a matter of fact, there was a national emergency, but it was in 1999, when IT people worked long hours on Y2k.

Maybe the reason for the yawning gap between hype and reality is that we forget to think critically about the "information" that people give us.

Bill Fugate
Rochester, N.Y.

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. Internet: letters@computerworld.com. Include an address and phone number for immediate verification.

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While the world may be getting smaller, its challenges clearly aren't. That's why it's reassuring to know some people have your best interests in mind. People who eat, sleep and breathe your business. So when you talk about your company's Internet needs, they understand every word you say. Fujitsu is the world's third largest IT services company.*—a $50 billion provider of IT and telecommunications products and services. With 60,000 IT support and service professionals and operations in over 100 countries, we're anything but distant. We get to know each of our global customers, on their own turf. All over the world. Isn't it nice to know that, wherever the Internet takes your business, there will be someone right by your side?

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*Source. IDC, December 1999. *Who Will be Leading the Global IT Services Industry in 2000?* A Competitive Analysis by Mauro Peres, Sophie Janne Mayo.

DAVID FOOTE

The Futility Of Resistance (To Change)

ONE OF THE NASTIEST, most debilitating workplace cancers is resistance to change. For those of us who make a living observing and analyzing the inner workings of hundreds of companies, there isn't a more potent, paradoxical or equal-opportunity killer of progress and good intentions. How else to understand why companies — even successful ones — fail to act on well-conceived, workable solutions; actively discourage innovative, creative ideas; lose their best employees for stupid reasons; and often helplessly watch their triumphs slowly disintegrate?

David Foote is managing partner and research director at Foote Partners LLC, an IT compensation and workforce management research firm in New Canaan, Conn. Contact him at [redacted].

Resistance to change is an important part of human beings' innate instinct to survive — yet, taken to extremes, it will result in their destruction. Maintaining the right balance is key to any organization's ongoing health and prosperity. Those who do it well use the following success factors:

■ **Manage transition, not change.** Resistance to change is more deeply rooted in transition — which is psychological in nature, more internally felt and focused on endings — than in change itself, which is mostly situational, outwardly projected and focused on outcomes. Consequently, nothing undermines change like the failure to think through who will have to let go of what.

Fear is palpable in companies pursuing change initiatives. In breaking through fear-fueled resistance, it's critical to identify who's losing what, anticipate overreaction, acknowledge the losses and give something back. Look for signs of grieving and allow workers to openly vent their anger and frustration. Provide information until it slowly sinks in. Explicitly define what's over and what's not, mark endings and treat the past with respect, symbolically and even literally, by letting people take a piece of the old ways with them.

■ **Keep change teams small.** Research indicates that small, empowered teams of six to eight have the greatest impact on change efforts. They're better at following rules but also at improvising solutions when facing barriers. And small teams make experimenting with essential performance-oriented reward and incentive programs easier.

■ **Anticipate and embrace failure.** Recognize that progress is what counts, that learning the new is difficult and that relapses are normal.

■ **Use metrics.** Appropriate metrics must be developed to more easily measure and reward performance toward achieving change objectives.

■ **Be in agreement.** For enterprisewide change initiatives, make sure there's clear agreement among influential managers and workers on a compelling need for change, plus consensus on the business vision and understandable first steps toward change. Dissension fuels resistance.

■ **Invite broad participation.** At least 15% of the workforce must be actively engaged and committed for enterprisewide change initiatives to succeed; 5% is needed to start the process. For smaller-scale initiatives, ensure that there's representation for all who have something at stake.

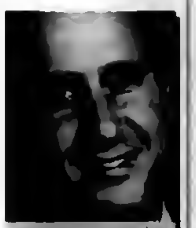
■ **Overeducate.** Management must constantly manage expectations and resistance by actively and repeatedly communicating mission, vision, philosophy, process, choices and details about change initiatives. Frequent management-bosted open-door meetings should be common.

■ **It takes time.** Don't be fooled by magazine stories about wildly successful change efforts like Microsoft's and Charles Schwab's strategic shifts to the Internet. Companies spend years quietly and carefully analyzing progress. ◗

HOWARD BERG

Avoiding the Stresses After CRM Installations

CORPORATE INVESTMENT in customer relationship management (CRM) products and services shows no signs of a slowdown. In fact, it would be hard to find a CEO of a Global 2000 company who isn't consumed by improving customer relationships.



Howard Berg is president of Berkeley Enterprise Partners, a Boston-based eCRM consulting company. Contact him at [redacted].

Industry analysts estimate that the market for CRM products and services be in tbe range of $5 billion to $12 billion by 2004. But companies may be jumping into the fray too quickly, believing that moving to automated customer-facing systems is as simple as choosing a packaged application. Implementing CRM is tough, particularly for companies looking to integrate all points of customer contact with the Web.

Project failure rates are high. Industry data confirms that nearly 70% of CRM projects that are focused on automating sales functions "fail to deliver measurable business value." Considering that an enterprise may invest upward of $10 million in its initial CRM launch, that statistic can be daunting. What's most troubling is that the worst implementations have little or nothing to do with the CRM software or the integration effort; the chief risk to business success is often the business itself. Specifically, most businesses' internal processes lack the consistency and rigor necessary for today's CRM systems to be completely effective. In effect, the company ends up automating — rather than eliminating — bad processes, and as a result, helps the business run more inefficiently more quickly. Inevitably, this leads to a condition afflicting both business and IT sponsors of CRM projects: Post-CRM Implementation Stress Syndrome.

The following are four strategies to mitigate the most significant project failure risks:

1. Design a customer coverage model that leverages all sales entities. The core of efficient CRM is a well-defined sales coverage strategy that integrates the strengths of all customer-facing resources. Leading companies shift appropriate tasks to functional areas most advantageous for the customer. Examples include making customer order status available via the Web, providing customers with real-time access to information when it's needed most and using call centers to keep customers informed of new products. These coverage models are designed with one thing in mind: Free up selling time for your most coveted — and often scarce — face-to-face resources.

2. Set realistic project metrics and measurements to quantify return on investment. Why do CRM projects seem to have so mucb difficulty establishing a return on investment? Very few projects place sufficient emphasis on ensuring that at the project's outset all stakeholders agree on the measurements of success. Leading companies structure CRM project metrics that can be quantified at early stages of the effort and then reinforce those business commitments by having project sponsors overcommunicate them to users.

3. Engineer business processes for customer-centric automation. Too many companies build functional requirements for a CRM implementation without considering its impact on internal workflows. In the end, the application may support every documented requirement, yet there's no guarantee that sales and marketing users will use the system consistently. Start with a customer-focused view: How will my customers interact with me for ordering and customer service? What continuous improvement processes are in place to help us keep our automation environment responsive to customers?

4. Ensure that users are trained and prepared to use the system. A firm should plan to spend 5% of its total CRM investment on training. Regularly scheduled process and data audits will reveal inconsistencies in data capture and data-quality issues — most of which will point to opportunities to build business rigor into the CRM system.

There are other significant variables that CRM project sponsors must consider before taking the CRM journey. The key is to prepare the infrastructure in such a way that it can absorb all the appropriate functionality the implemented CRM product can provide. ◗

SPECIAL REPORT

RULES OF THE GLOBAL ROAD

International IT posts are plum assignments, but they come with a host of problems that IT leaders must overcome to succeed. Hurdles include language and cultural differences, telecommunications headaches and a lack of standards for electronic exchanges. ▸ 40

BRACING FOR DISASTER

Want to survive a global IT disaster? A successful strategy requires central planning and setting some common standards. But even the best-laid plans may go nowhere without top management buy-in. ▸ 46

TALENT MAGNETS

Companies doing global business say recruiting top IT talent internationally requires more than just competitive compensation packages. Top techs also look for an employer with a strong reputation, attractive corporate culture, cultural sensitivity, extensive training programs and challenging IT projects that allow workers to grow. ▸ 48

TRAVELERS' TALES

If you think the chance to work with technology abroad sounds like an adventure, you may be right. It's probably not as glamorous as you think, but it will expand your horizons — and overseas experience could cinch your career back home. ▸ 52

World Class

ONCE UPON A TIME, only top executives at multinational firms had to worry about international business. But no more. Trade barriers are tumbling, supply chains stretch from the first world to the third, and any business with an Internet presence suddenly finds itself slugging it out globally online. Globalization makes the e-commerce revolution look like a street skirmish. And, as usual, IT is in the thick of things. In this Special Report, check out the cultural and technological pitfalls, disasters and career opportunities that await IT leaders when they step onto the world stage.

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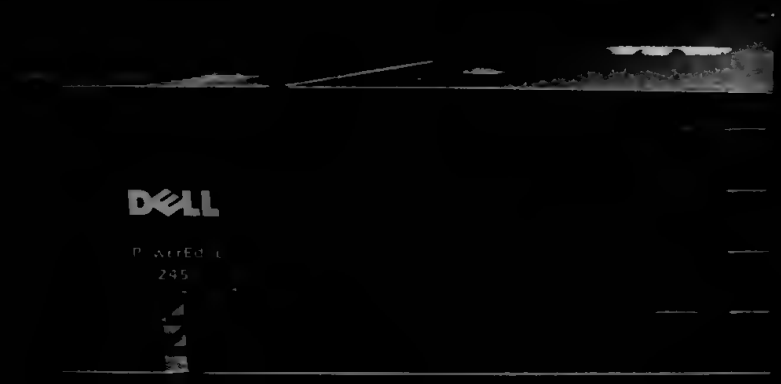

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JACK HEARNE

Master Babe

CIOs at global firms face cultural and logistical challenges. But it's important to communicate clearly across the organization to stay focused on corporate goals.

By Patrick Thibodeau

AS YOU WOULD expect of anyone in his position, Chris Scalet, CIO at International Paper Co., knows how to make a point. But when his words travel across a global corporate network that spans many cultures and languages, his point can get lost in the translation.

By the time the company's directive "gets down to the person who is actually implementing it in Poland or Russia or France, it may not be what you totally intended" because of cultural and language issues, says Scalet. An overseas project can take twice as long to implement as it does in the U.S., he says.

"It's a situation where you just have to communicate and recommunicate — you have to overcommunicate," says Scalet, who manages an IT staff of 2,200 in the U.S. and in 10 countries in Europe, South America and Asia from his company's Purchase, N.Y., headquarters.

Scalet is hardly alone. Effective communication, already a challenge for managing domestic staff, is a top concern for CIOs who oversee large international IT operations. But it's far from the only problem.

Cross-Border Conundrum

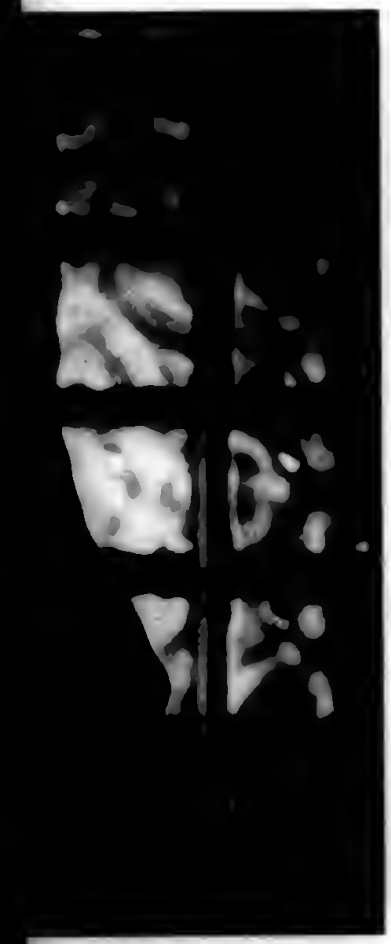
Companies with extensive international operations face uneven telecommunications support, coupled with high costs. Electronic exchanges are hindered by a lack of common standards for routine business transactions. Regulatory issues such as privacy are also beginning to emerge as potential problems.

But while companies like International Paper, General Motors Corp. and Baxter International Inc. have been implementing global communications systems that strive to integrate even the most far-flung operation into a seamless network, CIOs still spend a lot of time traveling to meet with people and fix problems.

To communicate overseas, Detroit-based GM uses telephone, video and Internet meetings. "But nothing replaces [traveling to and] working locally in the countries," says Jose Eiras, GM's CIO for Latin America, Africa and the Middle East, who spends about half of his time on the road.

But that's not to say networking can't optimize international communications, says John Moon, CIO at Baxter International.

The Deerfield, Ill.-based health care company, which has about 1,100 IT employees, with roughly half working outside the U.S., is developing something it calls Baxter DNA — Digital Network Access — using a virtual pri-



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> Our ability to have IT leadership who can scale and expand internationally is going to become an imperative.
>
> CHRIS SCALET (LEFT), CIO, INTERNATIONAL PAPER CO.

vate network (VPN) as part of its goal to have "anywhere, anytime access" to business information and its employees.

The communications improvements should allow Baxter to expand its collaboration and electronic-learning capabilities globally, offering consistent training to sales forces and clinical specialists, says Moon.

A good communications network can deliver timely and consistent messages, particularly in training, says Moon. However, he agrees with Eiras that face-to-face meetings are irreplaceable.

Communications Cordons

Nevertheless, U.S. companies still have to contend with uneven and unreliable communications in overseas markets. Many countries have state-owned telecommunications monopolies with limited bandwidth, shaky infrastructures and high costs.

"Communication cost is a major problem," says Eiras. Communication circuits in many nations, where deregulation hasn't arrived, can cost 10 times more than in the U.S., he says.

"There are no really strong global providers of telecommunications services internationally, so you have to deal with multiple people," says Scalet.

For its part, International Paper has to deal with a plethora of telephone companies, and in some regions, it can be an ordeal. In Eastern Europe, for instance, it can take six to nine months to get a telecommunications connection installed at a new facility, according to Scalet.

Getting around this problem takes some diligence and patience, says Eiras. Companies need to invest in competent international staff who can deal with the technical limitations and "are able to explore the opportunities," he says.

For instance, immediately following the recent deregulation of the telecommunications industry in Argentina, GM installed voice over IP, improving data connectivity while saving the company "a bundle" in voice costs, says Eiras.

Eiras also recommends keeping close tabs on infrastructure projects and availability of services. For instance, GM's Internet car sales site in Brazil faced potential performance problems because the site was hosted in the U.S. but linked to Brazil via satellite. Luckily for GM, it knew of a major carrier that was testing a new international fiber service and was able to solve the problem and launch the site on time.

Fortunately for U.S. companies, many countries are recognizing that they have to make legal and infrastructure improvements to attract foreign businesses, says Bruce McConnell, a former White House official who led the International Y2k Cooperation Center and now runs Washington-based consulting firm McConnell International LLC.

"An increasing number of countries realize that they have to play the game if they are going to get the benefit of the New Economy," says McConnell. "The trend is to deregulate and basically open up to the forces of globalization."

Vietnam is a prime example. Companies operating there today face such obstacles as a government firewall that can control information flow, limited bandwidth and high communications costs. But the country has been considering liberalizing its government-controlled telecommunications market since the approval of a U.S. trade agreement in July, says Tam Le, an IDC analyst in Ho Chi Minh City.

Speaking in Tongues

Globalization is also affecting corporate culture. Firms are stressing internally the need for effective interaction with worldwide offices. "We have to keep constant reminders that how we communicate to people in the southern part of the United States is not the same language that people speak over in Eastern Europe," says Scalet.

Senior IT managers also have to keep in mind that they're part of a global enterprise, says Moon. "You have to realize that the landscape is bigger than just the geography you're in," he says.

As companies increasingly expand in different countries around the world, senior IT managers are coming under pressure to learn foreign languages. In Europe, as in many other countries, it's common for managers to speak at least two languages.

International Paper's 75 international IT managers are all multilingual, and the company has hired instructors to teach French and Polish to some of

Moving With The Herd

In his approachable but comprehensive book *The Lexus and the Olive Tree* (Doubleday & Co., 2000), *New York Times* foreign affairs columnist **Thomas L. Friedman** describes how the global economy is consolidating into a tightly connected market that's fueled by international investors and the Internet. *Computerworld* features editor Kevin Fogarty recently caught up with Friedman and talked with him about how technology is changing not only e-commerce but global commerce as well.

What has changed about the pace of globalization in the past five to 10 years, and what has been the role of technology in that change? The simple answer is that the previous era of globalization – that is, the era that lasted from about the middle of the 1800s to the end of the Depression – was driven largely by a fall in transportation costs. That era basically shrank the world from a size large to a size medium.

I date [the beginning of this era of globalization] with the fall of the Berlin Wall, some date it with the invention of the integrated circuit. It's driven primarily by a fall in telecommunication costs, where the cost of transmitting voice, video and data is rapidly heading toward zero with the Internet.

The degree of integration that creates – where AOL can move its back room to Clark Air Base in Manila, where Thailand can become the world's largest truck producer, by simply importing the knowledge and capital – in the old days would have been impossible [without vastly improved communications].

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its employees working at its U.K.-based data center, which is one of two data centers operated by the company, says Scalet, who speaks some Spanish.

At the University of Central Florida in Orlando, which has some 600 students enrolled in its IT undergraduate and graduate programs, students are encouraged to learn a foreign language to prepare for international challenges. "Our students need to understand these different cultures," says Paul Cheney, chairman of the university's MIS department.

Cheney says he's also beginning to see some companies show a preference for hiring IT graduates who know foreign languages.

Keeping an Open Mind

But IT managers who know only English shouldn't start panicking about future career prospects. A second language isn't that important, according to Doug Watters, a partner in the IT management consulting practice at PricewaterhouseCoopers in New York, which has some 160,000 employees worldwide.

"In most of the major economies that Americans deal with, the businesspeople are quite fluent with English," he says. But managers may still face problems working overseas.

"Most Americans are less open to trying to understand something that is different," says Watters. "[It's an] American characteristic — we're relatively unexposed to the rest of the world." Managers considering jobs with overseas divisions should be open to trying to understand different ways of operating, different ways of dealing with authority, and different ways of coming to agreement and consensus, he advises.

> There is no international standard for data communications, and that is going to cause us significant grief.
>
> CHRIS SCALET, CIO, INTERNATIONAL PAPER CO.

Understanding local cultures "remains a challenge for multinational companies. A capable and trusty local general manager or chief operating officer is important to handle local cultural differences," says C.M. Chiang, managing director of market research firm IDC's Taipei, Taiwan, office.

Cultural differences aren't the only problem. The advent of regional business-to-business exchanges has brought with it a slew of data communications problems for global firms.

"There is no international standard for data communications, and that is going to cause us significant grief," Scalet says.

For instance, an electronic purchase order or invoice used in Europe is typically different than one used in the U.S., "so we are going to be required to translate our communications into two different formats," says Scalet. Since there are dozens of electronic formats in use throughout the world for exchanging business information, "it's going to drive our costs up," he says.

Regulatory Response

Privacy and security regulations, as well as different tax structures, are also beginning to emerge.

Baxter International is working to enhance its security, privacy and confidentiality policies in response to privacy regulations that are emerging in Europe and elsewhere. The company has privacy experts working with local authorities "to make sure that we understand what we can do and what we can't do," says Moon. But for now, the rules aren't affecting Baxter's data exchanges.

But privacy rules — particularly the European Union's tough data protection laws — are only beginning to take effect and haven't been tested yet.

Europe is signaling a willingness to play tough on this issue. For instance, Santa Clara, Calif.-based Yahoo Inc. was recently ordered by a French court to prevent French citizens from trafficking Nazi paraphernalia on the Yahoo site.

"The Europeans are not accepting the argument that you can't cut off Web sites," says David Aaron, a former official at the U.S. Department of Commerce who helped negotiate the European Union's "safe harbor" agreement and is now an attorney at Dorsey & Whitney LLP in Washington.

The safe harbor guidelines, which went into effect in November, provide rules for U.S. companies transferring data out of European Union countries. U.S. firms are considered to be in compliance with Europe's data protection laws if they voluntarily agree to follow a certain set of privacy practices.

Worldwide, U.S. firms face the worrisome prospect of varying rules, as countries adopt different laws, says Aaron.

In the meantime, companies are turning to international markets for growth.

"Our ability to have IT leadership who can scale and expand internationally is going to become an imperative," says Scalet.

Global IT Issues: A Primer

Companies with overseas operations face a number of obstacles:

■ **Data exchanges:** There are no international standards for doing business electronically. Differences in formats begin at the most basic levels. For instance, Asian languages often use double-byte characters that consume twice as much storage space as single-byte characters used in Western languages, according to Kimberly Trudel, a vice president at WebMethods Inc., a Fairfax, Va.-based provider of international business applications. There's an ongoing United Nations-sponsored effort to try to address such issues.

In the U.S., electronic invoicing is evolving to become more Internet-based, while in Europe, companies are just beginning to adopt Internet-based invoicing. As the rest of the world moves toward e-commerce, there will be greater demand for a common standard for electronic messaging, including invoicing, according to an International Paper official.

■ **Communications:** Jose Elias, CIO for GM's Latin America, Africa and Middle East operations, recommends that companies use VPNs overseas. In Ecuador, a country with severe limitations in communications infrastructure, for instance, a GM VPN is providing reliable connectivity, he says.

■ **Culture:** The common advice from CIOs who work for multinational companies is to work hard at communicating with overseas counterparts and to be sensitive to cultural differences. Companies also have to be sensitive to mores and ethics on a country-by-country basis, advises C.M. Chiang, managing director of IDC's Taipei office. A writing style that may be humorous to Americans could be offensive to someone overseas. — *Patrick Thibodeau*

Moving With the Herd

continued from page 41

That's a wholly different animal. And it is shrinking the world from a size medium now to a size small.

For U.S companies, is globalization a choice? Is there an alternative? The minute you do business on the Internet, you're suddenly global. Your suppliers are global, and your competitors are now global. So you immediately become *homo globus*.

What's really scary is that you ain't seen nothing yet.

I believe the Clinton years will be remembered as a fool's paradise between the and of a Cold War system and [the time] when the full brunt of the globalization system achieves critical mass.

The target date that Sony uses, for example, is sometime in 2005, when you're going to reach a tipping point in three areas: wireless communication, broadband and the next generation of the Internet, which will enable anything with electricity in it to have a URL – whether it's the lamp over your desk or your computer – and e-mail site.

How will this actually affect the world of business? People I respect say it will be the equivalent of the meteor. The Internet in 1995 was like the little meteor, and it did blow up some businesses and kill a few dinosaurs. I believe 2005 is the big meteor.

Everything will be free. Content will be free. Phone calls will be free; data transmissions will be free. It will be consumer heaven and industrial hell.

But the dot-coms that offer that model are flaming out. How is anyone else going to make it work? Don't have a clue. And that's part of my point. If this were the Cold War, we would be in 1946. We understand about as much about how the globalization system's actually going to play out as we understood how the Cold War was going to play out in 1946.

continued on page 47

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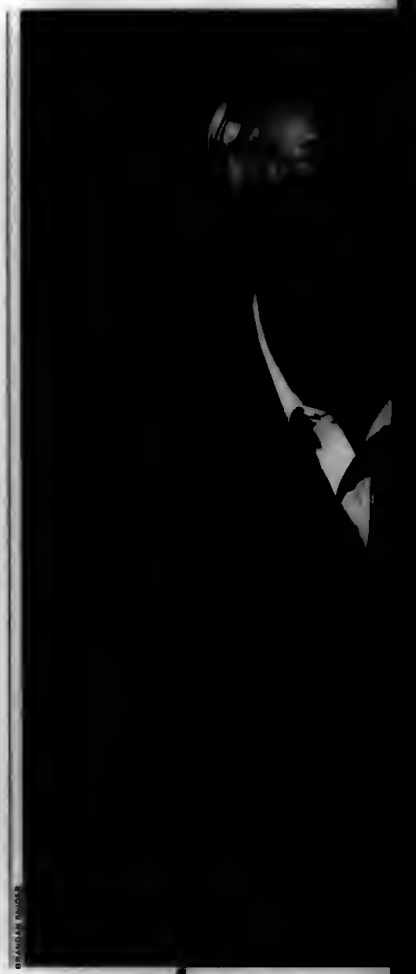
Averting Disas

Keeping global IT systems up after a disaster requires central planning and common standards – and enforcement from senior management. By Robert L. Scheier



SO YOUR organization has gone global, with mission-critical applications spanning time zones and national borders. You're more extended — and more vulnerable, relying on not only the glass house down the hall but also on an Internet service provider in Guatemala or a telecommunications company in Kazakhstan to get your fancy Web-enabled applications to customers and suppliers.

How do you protect these far-flung systems against natural or man-made disasters? With a mix of centrally developed recovery processes, enough flexibility to account for local differences in culture and infrastructure, and the clout of upper management to ensure that it all gets done, say IT managers and disaster planning professionals.

Multinational companies have been running global applications for decades, of course. But in the past, they were often hosted on tightly controlled internal computer systems, accessed over expensive but reliable private networks and could tolerate an occasional 24-hour outage. Today's global applications are often a mishmash of custom and off-the-shelf applications running across the less-reliable Web, and because they're important, they must be brought back up within hours or even minutes — not days — after a crash.

Global systems often involve not only multiple locations or divisions of a company but also systems controlled by suppliers or customers.

"We have more than 300 [e-commerce] initiatives in our organization," says Julia Graham, group risk manager at London-based Royal & Sun Alliance Insurance Group PLC. "With a Web-based business, you could have many joint venture partners and suppliers, and the plan becomes a matrix of different recovery needs based on the potential scenarios that might arise."

Different regions of the world differ widely in the quality of physical recovery sites and the quality of staff at those sites, say IT managers. And because these applications support vital business functions, they must often be brought back up immediately.

"It's not fun," says Jay Leader, director of application development at Nypro Inc. in Clinton, Mass., a plastics molding company that operates 75 servers and has 4,000 users around the world. "It's hard enough . . . to do domestically, when everyone speaks the same language and is in the same time zone," he says, but it's even harder "to try to coordinate an [IT] vendor in Singapore and a vendor from China."

The first step should be for business managers — ideally at the local business units, to ensure their buy-in — to decide what applications are most in need of protection and how much protection they're worth. This is often the point at which the critical but touchy issue of who will pay for this "application insurance" should get tackled but often isn't, says Gerard Minnich, a global business continuity program manager at Electronic Data Systems Corp. in Plano, Texas.

"Typically, where programs fail is at the [funding] level," he says, especially at a local business unit. Along with a corporate edict to provide disaster recovery, says Minnich, management must also provide a clear process for determining backup priorities and how to fund them.

"If you don't have guidelines and you don't have criteria, you won't have funding," Minnich says.

A Range of Price Tags

Business recovery costs vary widely. A basic assessment of a company's recovery needs might cost $50,000 to $100,000, while a large company might spend $1 million per month for high-level disaster protection, says Todd Gordon, general manager of IBM's Business Continuity and Recovery Services division. In general, he says, companies should expect to spend between 7% and 15% of their overall IT budgets on disaster recovery.

Agreeing on how to bring a failed system back up is both more important and more tricky in a multinational environment. People in different parts of the world work according to different schedules and cultural rules — not to mention the fact that they speak different languages and live in different time zones.

"Synchronization of the recovery is real key," says Bill DiMartini, vice president of consulting operations at SunGard Planning Solutions, part of SunGard Data Systems Inc. in Wayne, Pa.

Say, for example, an outage that hits an enterprise resource planning system at midnight in Germany stops data flowing to and from a factory in Singapore. The factory will keep using parts and shipping products. But when the system in Germany is brought back up, the staffs in Singapore and Germany must synchronize the two databases not to the point when the German system went down but to the last backup on the German system.

Since synchronization is also required in day-to-day operations, some companies link disaster recovery planning to regular IT operations. That means linking the change management and version control done in the corporate data center to that done at a backup site, says Marshall McGraw, manager of IT business services at Phillips Petroleum Co. in Bartlesville, Okla.

"Let's say we do an upgrade internal-

> Our board expects business recovery plans to be in place.
>
> MARSHALL McGRAW (LEFT), MANAGER OF IT BUSINESS SERVICES, PHILLIPS PETROLEUM CO.

ly to SAP [R/3] that affects the data that needs to be recovered, or [we change] the configuration of the hardware" on which R/3 runs, says McGraw. Unless the backup site knows about every such change, he says, " you spend a week trying to find all the changes you made [since you last] declared a disaster." Once the procedures are in place to keep the backup site in the loop, the ongoing effort to communicate those changes is minimal, he says.

Think Globally, Act Locally

Given the obstacles, few, if any, multinational firms are doing real-time recovery of global applications. They instead recover applications at local sites and then reconcile the changes around the world later, says Gordon.

But one global recovery practice won't serve everyone's needs. "Some of our operations are fairly small, and some of our operations are fairly significant," says Leader. One plan might be overkill at a small location but grossly inadequate at a large facility.

Many multinational companies issue centrally mandated guidelines for business recovery, leaving local units substantial flexibility in how they reach the goal. Some keep the strictest rein on applications that gather and share information affecting the entire business, giving local units more autonomy on site-specific systems.

Phillips Petroleum, for example, has centralized the operation and backup of its core SAP R/3 and Oracle applications, says McGraw. Every 24 hours, IT staff at headquarters ship backup tapes to a disaster recovery center. The central IT group also arranges for backup network links should the primary Web connections go down.

Remote sites are free to make their own arrangements for hot sites, data backup and backup network links, assuming they follow common recovery procedures, says McGraw.

Graham's colleagues at Royal & Sun are currently working on the third release of the company's worldwide standard for business continuity planning, part of which is based on basic principles of disaster recovery planning and part of which "will be very much influenced by the local business needs, including call centers and those related to the 'e' world," she says. If a business unit can develop a disaster recovery plan without using the central standards, "I'm perfectly happy with that," she says.

Something as expensive and unglamorous as disaster planning won't happen unless senior executives demand it and corporate auditors check to make sure it's done.

"The biggest challenges have come down to . . . making executives aware of the critical nature of technology and accurately depicting the risks that a company or technology is exposed to," says Damian Walch, senior vice president of professional services at IT services firm Comdisco Inc. in Rosemont, Ill. He estimates that only 15% of his customers are proactively planning disaster recovery processes. "Most companies are still managing it in a reactive mode," he says.

Management backing makes disaster recovery an easier sell at Phillips, says McGraw. "We in IT aren't going out there trying to beat on people or begging people to have these things in place," he says. "Our board expects business recovery plans to be in place."

Minnich advises managers to not only establish clear processes for developing and funding disaster plans but also to set specific timetables and goals for each stage of the work. "Don't just throw a process at people and let [them] spin around for months and months," he says. "Set a clear finish line so the people who are writing the plans know when they are finished."

And "don't try to do everything at once," says Minnich. "Go after the things everyone knows needs to be protected," such as critical data centers.

"Show some success, show some value and then start building on top of that capability," he advises. ▶

Scheier is a freelance writer in Boylston, Mass.

Recovery Planning

- Make sure you have senior management backing to ensure compliance.
- Use a consistent planning process and methodology so all business units know the ground rules and how disaster planning will be handled.
- Don't try to do everything at once; start small by protecting applications everyone agrees are crucial.
- Set clear finish lines so your staff can see when they have succeeded.
- Set progress milestones along the way to keep the work on track.

Moving With the Herd

continued from page 42

And so you have to be incredibly humble and incredibly nimble.

The real question is [on] the "e-ing" of companies on a massive basis and then integrating [the e-business] with everything else. What impact will that have? I believe you don't have to be a crazy futurist to believe that it will have a big impact.

What type of company do you think will dominate? We live in a world where there are basically two kinds of companies: Internet companies and anti-Internet companies.

Internet companies are those that will transform or enhance their businesses by doing it over the Web. Anti-Internet companies are those that benefit from the fact that the more you're home with your Internet, the more you want to get out and touch something, smell something, rub something.

The shopping center is the classic anti-Internet play. But the shopping center is going to broadband because it knows that it has to in order to manage its bookkeeping, inventory, take advantage of the content that will be out there [to enhance the shopping experience].

In the book, you talk about the "Electronic Herd" – the money managers who jump from one country to another to find good investments or short-term partners. Can you talk a bit about the Electronic Herd and its impact? The herd is basically the energy source of the new globalization system. If, in the Cold War, the energy source – that is, the source of capital to grow – was governments and taxes, in the globalization era, the primary source will be the herd.

The herd is made up of all those investors out there, from you at home trading on your ETrade account all the way up to the big multinational banks and corporations.

This herd existed during the

continued on page 49

Global Glamour

For multinational companies to catch the eye of workers abroad, they must boast strong international reputations, sophisticated technology and cultural sensitivity.

By Kym Gilhooly

IF YOU THINK finding qualified IT personnel to staff worldwide operations is difficult, try adding "must have sea legs" to the list of attributes you demand of prospective IT workers.

That's the challenge facing Jack Mencini, manager of shipboard operations at Miami-based Royal Caribbean Cruises Ltd. Not only must Mencini find IT employees who can manage the cruise line's onboard Windows NT- and Unix-based networked environments, but he must also find professionals who don't mind spending months at sea and living with the same people they work with.

"Many people who come into this think it's going to be a wild time, but it's really a very confined lifestyle," says Mencini.

Of course, the romantic aspects of that lifestyle can be a selling point. And Royal Caribbean has creatively leveraged its non-IT workforce to address some of its global IT needs.

"A lot of our IT workers grew up in the cruise industry in other positions, and they love the lifestyle. They show an acumen for technology. So we work to bring them along for IT positions," says Mencini.

Royal Caribbean's IT workforce of nearly 70 onboard systems managers comprises workers from the U.S., Scotland, Canada, India, England, Greece and Haiti.

Like Royal Caribbean, global businesses everywhere are forced to be creative to fill IT job openings in a market characterized by huge demand, limited supply and cultural challenges.

"IT hiring problems are absolutely not unique to the U.S. but are prevalent in developed economies around the world. There's a revolution on the demand side, but not on the education and training side, to keep up," says Harris Miller, president of the Arlington, Va.-based Informatioo Technology Association of America (ITAA).

Though analysts say demand for IT workers is greatest in North America — resulting in well-publicized outsourcing deals in countries such as Iodia and Ireland — shortages are felt the world over.

Meeting the demand for IT workers globally requires more than just competitive compensation packages, though these certainly are a must. Global companies must also boast strong international reputations, attractive corporate cultures, cultural sensitivity, extensive training programs and — perhaps most important — challenging IT projects that allow workers to grow in their careers.

While a company's reputatioo isn't the only factor in attracting IT talent, it's a great starting point, say executives responsible for global hiring.

TOM A. VAN SANT/GEOPHOTOGRAPHY

"We are one of the largest companies in the world, with a strong heritage and a strong future in front of us," says Roger Mitchell, director of human resources for IT at Dearborn, Mich.-based Ford Motor Co., which employs 5,000 IT workers throughout the U.S., U.K., the Asia-Pacific region, South America and other parts of the globe.

"The Ford name has a big impact on our ability to hire IT professionals."

Reputation is likewise a point of leverage for Unisys Corp., a Blue Bell, Pa.-based IT services provider with offices in 35 countries.

"IT people have more choices than they've ever had, and with the global economy reasonably strong, your image as an employer is more important than ever before. If you have a strong market presence in a country, it's much easier to recruit there," says Dan Guaglianone, vice president of global recruiting at Unisys.

At Memphis-based FedEx Corp., corporate image likewise goes a long way toward attracting prospective IT workers in other countries. But it's the opportunity to work on leading-edge projects that often seals the deal, says Henry Fields, vice president of IT at FedEx's Miami-based Latin America and Caribbean division.

"IT people go nuts on a lot of what we're doing, because much of our technology is customer-facing and very transaction-based rather than batch-oriented," says Fields. "They're excited about projects involving Java and HTML because many local countries don't have access to [such technologies]."

While the opportunity to work with hot technology is attractive to IT candidates, it creates a technological catch-22, says Nancy Reynolds, CIO at FedEx Canada in Toronto. "You then have to find the right skill sets to handle those technologies," she says.

For example, FedEx Canada faces challenges in hiring IT workers skilled in the technology that drives its fulfillment and logistics-oriented business. This technology hasn't penetrated Canada to the same extent as the U.S.

"We certainly have some challenges finding people with experience on the [customer relationship management] side, because CRM is the hot app right now," Reynolds says.

Because it's so close to the U.S., FedEx Canada finds another IT hiring challenge that global companies hiring in more-distant countries might not encounter. An IT worker from Singapore might hesitate at making the long trek to the U.S. But Canadians need only move across the border to take advantage of IT salaries that are, on average, 30% higher, says Reynolds.

It's a Small World After All

As if staffing IT jobs for worldwide operations weren't difficult enough, global companies that want to place multinational IT teams in countries where they do business face other cultural issues, says Miller. In Japan and other Asian countries, for example, "cultural, linguistic and other barriers make it difficult to get acceptance for workers brought in from the outside," he says.

Guaglianone agrees. He says companies that bring in American IT managers run the risk of alienating local workers. "U.S. companies that insist on bringing in American managers sometimes have a tough time succeeding," he says. "[Local IT workers] have a problem when the guy getting the biggest bucks on a project is American."

As for language barriers, Royal Caribbean's Mencini says it's the language of technology that's the bigger hurdle, now that English has become the planet's lingua franca.

"Our IT employees speak English, yes, but communicating technically is a different matter than conversational language," he says. "How would you like to explain an Ethernet connection in something other than your native tongue?" To reduce frustration, Mencini says, management works with employees to strengthen their language skills.

Despite these challenges, many global companies say the world's move toward a digital society has significantly decreased cultural problems, language barriers and the IT skills gap that many encountered in the past.

"Any time you go into a different country, there are some cultural issues that you have to respect, but the issues aren't major," says Fields.

As for differences in IT skills by region, Fields and others say the divide is almost nonexistent.

"In my case, it doesn't matter whether it's Puerto Rico or Brazil. The technology base is the same," Fields says. "They all want to plug in and show their aptitude and be a strong player in the global market."

Gilhooly is a freelance writer in Falmouth, Maine.

Moving With the Herd

continued from page 47

Cold War, but that world was so chopped up and divided that it couldn't really gather and graze and grow strength. But now that the walls are increasingly blown away, the herd can gather, graze, grow and drink through 180 countries. So if you want to grow now as a company, as a community or as a country, you've got to plug into the herd, because only the herd has the capital to grow.

But the herd is like a high-voltage wire. Plug into it right, and it'll light up your country, company or community. Plug into it wrong – without the right filters and software, the right regulatory and oversight institutions and governance – and it'll burn a hole through your financial system and your environment and culture faster than anything in history.

How do you see the behavior of the herd changing? I just think the herd is going to get bigger, faster, more greedy and more frightening. It's like going from the tail of a mouse to the tail of a *Tyrannosaurus rex*.

The secret is the fundamentals: [Successful] companies will have their fundamentals right – a profit-making model that makes money by the traditional laws of gravity and not by any of the crazy metrics that have been visited on us in the last two years. And governments that get their fundamentals right – their governance, their rule of law, their courts, their regulatory institutions, their oversight bodies, their free press – can plug in the bandwidth and the modems anywhere.

Doesn't plugging the whole world together increase the risk? Yes. The Love Bug was to the era of globalization what the Cuban Missile Crisis was to the Cold War. It teaches us the dangers of a world connected where no one's in charge.

There are a whole set of issues that call out for better global governance, but we have no global government. And how we get that will be a huge issue.

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www.windows2000advantage.com/pov/12-11-00_integration.asp

TECH EDGE

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Microsoft announced plans to take a far more active role in the development of products and standards designed to meet its customers' systems management needs.
www.windows2000advantage.com/tech_edge/12-05-00_systemsmgt.asp

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Active Directory worth the Internal Hack attack

Dan Kusnetzky, vice president of systems research at International Data Corp., says that Windows 2000 is headed down a successful path.
www.windows2000advantage.com/qa/12-12-00_quiz.asp

COLUMNS

Avoid the outside approach to security

Applications security companies still take an outside approach to security because they don't have a way to securely set user permissions, Columnist Irving Tabory says.
www.windows2000advantage.com/columns/12-05-00_tabory.asp

CASE STUDIES

TECH EDGE >

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2000 GENERATION >

Microsoft Mobile Information 2001 Server enabling Windows 2000 mobile users to go wireless

In anticipation of high projected wireless mobile Web and e-mail access demand, Microsoft's Mobile Information 2001 Server – which was introduced as part of the .NET enterprise server line – was created with Microsoft Windows 2000 mobile users in mind. Expected to become available during the first half of this year, Mobile Information 2001 Server will offer not only e-mail access, but access to calendaring and other wireless applications such as customer relationship management (CRM) and accounting.

For the full story, visit: www.windows2000advantage.com/2000gen/12-04-00_mobile.asp

www.Windows2000Advantage.com/300

E

GENERATION 2000 >

Compaq's massive, methodical Windows 2000 migration

This is the first article in a three-part series about Compaq's Microsoft Windows 2000 migration effort. This first piece will describe the various elements of the project, how it is organized and the advantages Compaq expects to gain from Windows 2000.

The second article will focus on the two threads that are furthest along: desktop migration and the migration from the old Microsoft Windows NT 4.0 servers and resource domains to an entirely new infrastructure based on Windows 2000 servers and Active Directory.

The third article will sum up the migration to date, including challenges and lessons learned. Also included will be some tips from Tim Benson, Compaq's internal worldwide program manager for Windows 2000, on how to ensure a successful Windows 2000 installation.

Ever since he took over Compaq's worldwide Windows 2000 migration project in January, Tim Benson has been getting quite a few calls from his counterparts at Fortune 500 companies.

"I'm an internal IT staff guy, yet I do two or three Windows 2000 migration presentations to companies every week right now," Benson says. These companies have hired Compaq Professional Services to help them with their own Windows 2000 migrations, but they still also want to talk to Benson, because he is actually in the trenches.

The fact is, when large multinational corporations call for advice on a problem or a particular aspect of Windows 2000 migration, the odds are that he or someone on his team has already encountered it.

A long-time and close partner of Microsoft, Compaq was one of the first five companies to join the Windows 2000 Joint Development Partnership (JDP) program.

For the full story, visit: www.windows2000advantage.com/momentum/01-01-01_manage.asp

QUOTE OF THE WEEK >

"What you have to realize is that Microsoft is getting serious about systems management."

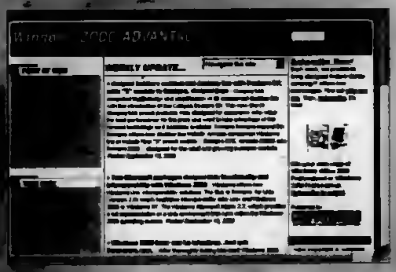
—Ray Pacquet
vice president,
research director
Gartner Group

What is Windows 2000 Advantage?

The mission of Windows 2000 Advantage is to become your primary source of timely, useful information for planning and implementing Microsoft Windows 2000 on Compaq solutions and services.

Windows 2000 Advantage is a Web-only magazine because that lets us bring you, the IT leader, great stories that apply to your day-to-day work. We'll keep you up to date with a weekly e-mail alert so you don't miss a thing.

Windows 2000 Advantage is underwritten by Microsoft and Compaq. Its charter is to address the issues that most concern IT managers charged with keeping their companies on top of the latest and best solutions Microsoft and Compaq have to offer. Toward that goal, we offer a wide range of stories including case studies, columns and news to provide you with information you can't find anywhere else.



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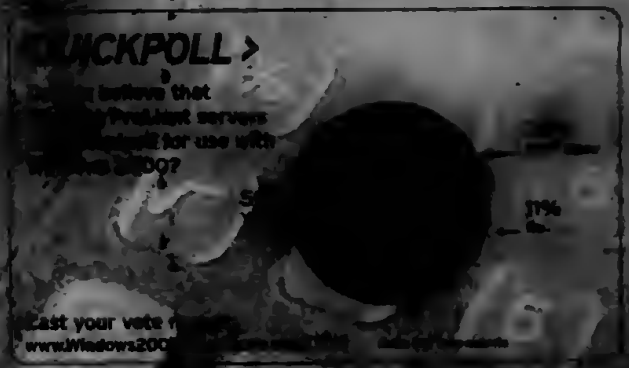

Foreign Service

Snagging an overseas assignment can boost an IT pro's business, managerial and interpersonal skills. But be warned, working abroad is no holiday. By Julekha Dash

KEITH KRATVILLE, a technology instructor at Chicago-based consulting and training firm Terasys Inc., describes himself as a "born and bred Midwesterner" who, prior to seven months ago, had never ventured outside North America.

But last summer, Kratville seized the opportunity to spend two months in Sydney, Australia, teaching application development skills for Web-based technologies, such as HTML, JavaScript, and SQL, on behalf of the Australian government.

Kratville and many other IT workers who have completed foreign assignments say the experience has made them more independent and appreciative of diversity. This, in turn, has led their companies to entrust them with more managerial responsibilities.

In addition, IT workers with this exposure have a better sense of how to prepare software and systems for an international market, says Naomi Bloom managing partner at human resources consultancy Bloom & Wallace in Fort Myers, Fla.

"International work is essential to the career of an IT professional," who needs to understand that features such as time and date need to be adjusted from country to country, Bloom says.

Overcoming Obstacles

If you think the chance to work abroad sounds like an adventure, you're right. But perhaps it's somewhat more mundane than you imagine.

Kratville didn't return with stories of encounters in the Australian outback. Instead, he speaks about how he had to carry a space heater from room to room in his apartment because most homes there lack central heating. (July and August are winter months in Australia).

As the temperature dropped to 40 degrees Fahrenheit, Kratville spent some nights sleeping in his coat.

IT workers will want to do more research before traveling than he did, Kratville advises. This includes learning about not just the weather but also the culture, currency exchanges and transportation system.

Prior to arriving in Sydney, Kratville didn't realize that the Australian dollar is worth about half that of the American dollar. Nor did he realize that he would have to grocery shop more often because the country's refrigerators are approximately half the size of those in the U.S.

For many IT workers, the biggest factor to consider may be one that doesn't involve their job at all. Employees should also consider that living abroad will likely mean major career disruptions for their spouses.

Daniel E. DeHart, IT director at Capital One Financial Corp. in Falls Church, Va., says he was able to take an overseas assignment because his wife, a sales manager, was "willing to put her career on hold" during his two years in England.

Getting an Assignment

In some cases, managers seek IT workers with particular skills to send abroad. But if an IT worker wants to take the initiative to seek an overseas assignment, he should let his managers know, be patient and make sure there's a compelling business reason for working abroad, says DeHart.

It took one year from the time DeHart voiced an interest in working in a foreign country before the company sent him to England as it was expanding its IT infrastructure in that region.

After working 12 years at the headquarters of Memphis-based Federal Express Corp., Denise Wood spent almost three years as CIO and vice president of the FedEx Asia Pacific region, beginning in 1996. In addition to witnessing the historical British handover of Hong Kong to China, Wood — who is now vice president of customer systems — gained some invaluable skills.

"It helped build my confidence in different situations, and I came back taking on a much bigger role," she says.

Wood says she realized how crucial it is that the company's Web site features local language support. "If you don't have international [support], your Web site appears broken," says Wood.

In addition, she learned how to operate in a more complex IT environment without making shipping more complex to customers. The shipping market in Asia is more export-driven than in the U.S., and, as a result, IT systems need to be sophisticated enough to support these international shipments, says Wood.

Just as travelers have to wade through customs each time they enter a foreign country, packages sent abroad need to go through similar checks. "This hammers home the need to simplify shipping experience to our customers," Wood says.

After returning from his international assignment, DeHart was promoted from group manager to director. He's now managing five times as many workers as before.

Like other IT employees who worked abroad, DeHart says that encountering people from different cultures made it imperative to become a good listener and appreciate differing viewpoints.

"If you don't take the time to listen to folks, they can become very frustrated [when you] propose something. I understand and listen to people much more [and] incorporate [that] in my management," he says.

Lasting Impressions

Veterans of foreign assignments cite the following career impacts of their international experience:

Easier to obtain a different position in the company	41%
Faster promotion	30%
Change employer more often	27%
Not sure	32%
Other	8%

SOURCE: OCTOBER 2000 SURVEY OF 161 PROFESSIONALS WHO RECENTLY COMPLETED FOREIGN ASSIGNMENTS, CONDUCTED BY BMAC GLOBAL RELOCATION SERVICES, NATIONAL FOREIGN TRADE COUNCIL INC. AND THE SOCIETY OF HUMAN RESOURCES MANAGEMENT GLOBAL FORUM

BUSINESS

LABOR PAINS

The use of foreign IT labor outside the U.S. is limited, despite the cost-saving potential. But the United Nations plans to change that situation. It's working to bring developing countries up-to-date with technology so they can partake in the New Economy. ▸ 54

IT OVERHAUL

The IT department at Repuhlic Mortgage Insurance has spent the past two years overhauling its back office and putting in new systems. CIO Deron Streitenberger talks about the experience and his company's IT plans. ▸ 55

SURPRISES ON THE NET

Internet commerce has been marked by many surprises during the past two years, writes Peter G.W. Keen. The new year will hring even more, he says. ▸ 55

QUICKSTUDY

Bridge financing is a form of short-term financing — usually a loan backed by equity — that's used by a start-up to pay for operating expenses during negotiations for a second-stage round of venture capital investment. But, ironically, the dot-coms that could most use bridge financing are often the least likely to get it. ▸ 58

MORE

JOB SEEKERS' PARADISE

LAYOFFS, LAYOFFS, LAYOFFS. They're hard to escape these days, with new announcements coming each week from all parts of the country. But there are several areas where the IT job opportunities are still plentiful. You just need to know where to look.

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U.N. Pushes For Global Labor Force

U.S. firms still resist using foreign labor abroad

BY JENNIFER DiSABATINO

KAMAL MUSTAFA said he has the same idea capitalists have had since the Industrial Revolution: Find a cheaper source of labor.

"We tend to staff outside of the U.S." when doing work for foreign clients, he said.

Mustafa, chairman of BlueStone Capital Partners LP in New York, oses U.S. workers when doing work stateside. However, his global finance firm uses local contractors when setting up offices outside the U.S., especially in Asia, he said, because their salaries are lower, they don't usually demand the perks U.S. consoltants do and they don't need to sightsee when in exotic locales. They're there to work and earn money from big international companies, he said, and they're earning several times what their countrymen might bope for in the local economy.

But the use of foreign IT labor outside the U.S. is limited, said Derek Lacks, a senior consultant at The Delphi Group in Boston, despite the "major cost-saving potential."

"When you're looking at the development methodology, the number [of] things that can go wrong is just tremendous," he said. For instance, in some less developed countries, the copper lines used as the communications backbone are routinely dug up and sold by black market profiteers, Lacks said. "Most companies here in the U.S. wouldn't be using offshore resources for the [U.S.] market."

However, the Uoited Natinns is planning to change that situation. Last month, U.N. Secretary General Kofi Annan appointed former Costa Rican President Jose Maria Figueres as a special representative to the Information and Communication Technologies (ICT) Advisory Group, a team of technology experts from the private and public sectors in developed and underdeveloped nations.

One of Annan's and the ITC's priorities is to bring developing countries up-to-date with technology to partake in the New Economy. Annan has placed an emphasis on education as the key to bringing foreign technology and investments to the Third World.

Already, Lacks said, some companies are installing private, secure lines to run operations in countries like Egypt. Eventually, they could be used to belp build the infrastructure as well. How soon that will happen, and how far behind the developing countries will be when that happens, is another question, Lacks said.

Fair Labor

Organized labor has also taken an interest in the foreign IT labor pool. Wasbington-based Communications Workers of America (CWA), part of the AFL-CIO, has begun to reacb out to IT workers in India. CWA members teacb IT professionals there about the H-1B visa process and guide those workers to the U.S. firms that are least likely to abuse less expensive, foreign labor.

FORMER COSTA Rican President Jose Maria Figueres is in a global IT advisory group.

A case in point is Troy, Mich.-based Syntel Inc., which, because of its contract with New York-based American International Group Inc., was slapped with a hefty fine by the U.S. Department of Labor for paying its computer programmers from India wages 20% below the legal standard.

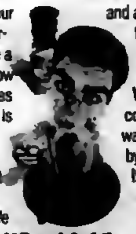
Not everyone watching the digital labor grab sees a problem for IT workers in relatively poor countries. Though their salaries may be well below what American IT workers earn, that money is still several times what most of their countrymen earn, and it's a win-win situation, some globalization supporters point out.

J. Bradford DeLong, a professor of economics at the University of California at Berkeley and a member of the U.S. Department of the Treasury in the Clinton administration, said globalization may be the best hope for struggling economies. "A bet on increased international economic integration is our best hope for rapidly moving to a truly buman world," DeLong said. "But I also think that this bet on increased international economic integration is a bet. It is not a sure thing."

WORKSTYLES

IT Overhaul Dominates the Scene At RMIC in North Carolina

Interviewee: Deron Streltenberger, CIO
Company: Republic Mortgage Insurance Co. (RMIC)
Main location: Winston-Salem, N.C.
Number of IT employees: 80 to 85 permanent, plus about 25 contractors
Number of employees (and users): "Right now, we have about 550 to 600, but it changes so quickly in our industry, based on interest rates. We may have a growth spurt with the lowering of the interest rates [announced Jan. 3]. IT is about 20% of the company."
IT turnover rate last year: 3.5%
Major initiatives: "We forklifted our whole back office over the last two years and put in all new systems. This year, our emphasis is on leveraging that for our customers. We have electronic interfaces to our customers to allow them to do business with us over the Net, but now we want to simplify those and increase the functionality. A lot of interchanges with our customers today occur over private networks via non-Internet protocols and proprietary data sets. We're running them all out over the Internet."
Recruiting: "We're on a pretty serious push this year to better balance our mix of permanent employees and contractors, and [for select candidates] we've committed a significant amount per person to put them through a boot camp that's heavy on Microsoft technology. They'll come out with a foundation in object-oriented design and analysis."
Other IT training: "Unfortunately, I can't lavish training on everyone. We're matching our expenditures with our goals and objectives, so some will get the boot camps and others will get a local seminar in Greensboro [N.C.]. A big push will be for Windows 2000 training for our infrastructure people [in preparation for a migration from Windows 95 and NT], as well as management and leadership training at the Center for Creative Leadership in Greensboro for those entering management roles."
Employee reviews: Annual
Compensation and bonuses: "Every two to three years, we work with a consulting group to determine the appropriate compensation structures, and we tailor those for our people to include a combination of salary, traditional bonuses related to individual performance and a return-on-equity plan that's tied to company performance and individual contribution."
Workday: "You can come and go as you want and as enabled by your schedule. . . . If there's a week when [people] only need to work 30 hours, I encourage that, because I know there will be another week when they'll work 50 hours."
Dress code: "It's been casual since the inception of the company, and there's not really a strict policy. . . . If you're meeting with a customer, you wear what's appropriate."
Kind of offices: Open space. "Not even the company president has an office. If you need to have a private conversation, there's always a conference room available."
Little perks: "Frogticks," which are spontaneous reward certificates that employees can use in the company store; Fun Fridays, weekly departmental breakfasts; monthly themed luncheons where staffers cook for one another, play games and watch movies; quarterly team-building activities such as bowling, skiing, fishing, rafting, golf or paintball; free home Internet access for all employees.
Would employees feel comfortable e-mailing the president and CEO, Bill Simpson? "Absolutely. He holds News and Café sessions every month where he brings in 20 or so employees for a luncheon and questions. When the company was smaller, he would hold the company picnic in his back yard. He knows everyone by name."



What It's Like To Work at...

– Leslie Goff
lgoff@ix.netcom.com

PETER G.W. KEEN

More Surprises

INTERNET BUSINESS is a constant surprise. 1999 was the year of business-to-business surprise, the explosion of trading exchanges, auction sites and successful new players like Ariba and i2. Last year was more like "Surprise! Surprise!" with the Nasdaq meltdown and all the "dot-bomb" collapses.

This year will surely see another set of surprises.

It's important that IT be positioned not just to handle whatever surprise comes along but also to realize that last year's surprise sets up the following year's conventional wisdom and fashionable opinions.

The 2001 fashion in the media and in casual business chat is — chiefly — that the dot-coms are all gone and most of e-business is a dead end, with the worst yet to come. My favorite recent example is from Michael Wolff's Jan. 1 column in *New York* magazine: "By the end of 2001, there will be no Internet business whatsoever. . . . The Internet as a unique business is gone. . . . Technology, we will come to agree with the passing of the Panglossian era, sucks." You get the idea. I constantly come across less smart-aleck versions of this in my media interviews about my books, which invariably begin with the assumption, "Since the dot-coms are finished . . ."

What do you see as the 2001 'surprise' in the Internet economy?

What's the IT response to this year's fashion? We can't get defensive or take refuge in those worthless forecasts of mobile commerce, B2B, Latin American e-commerce or any other type of online business being $Y billion in 2005. We can't offer new hype. The surprises of 2000 killed the credibility of any killer app news. IT needs to offer a position, a viewpoint on where and how we see 2001, though it, too, will be a year of surprises that we can't predict.

Every IT professional is — or should be — an ambassador representing his IT organization, company, professional area of interest, technical specialty or any combination of these, so that we have more to offer than a shrug of our shoulders or a "No way!" to any fashion that can greatly influence the climate in which IT works this year.

Here's my reply. I'm in no way suggesting that it should be yours, but I'm asking: What do you see as the 2001 "surprise" in the Internet economy?

My sense is that it will turn out to be how robust the basic thrust of e-business really was last year and is now. The most striking hint of this is the Christmas retailing experience. Early figures showed overall sluggish growth, but online sales continued their 1997-99 pattern of an overall 70% to 100% increase (depending on whose figures you use). True, eToys this month finally surrendered to the realities of marketing costs that never generated enough revenue. But even with its misfortunes and worries over a possible recession, the fundamental structure of B2C e-commerce looks very sound.

Similarly, even as the B2B space is now out of fashion, the 2001 surprise that's sure to be just as big as the B2C surprise will be the continued surging impacts of the Internet-driven logistics revolution. Report after report — from Cisco, GM, IBM and GE — tells of $500 million to $1.5 billion in documented savings. Even if there's a recession, their B2B momentum won't be slowed, and other firms are following fast. If anything, a recession should accelerate B2B as companies race to streamline operations and cut costs.

And what most impresses me is the new tenacity of the executives I deal with. They're mostly out of fashion now in that they're staying the course on e-business. I don't hear any of them questioning its basic proposition, so it's still on track.

Finally, I'm beginning to see surveys suggesting that a surprising number of dot-coms are making money.

So my IT-related response to this year's fashion is this: Look at the fundamentals, not the surface. A massive shakeout will continue in 2001, but — surprise! — while you might see the overall scene today as bad, the survivors and consolidators will look good in 2002.

Keen is chairman of Keen Education, as well as an author and consultant. His Web site is www.peterkeen.com, and he can be reached at peter@peterkeen.com.

Hiring Havens

Looking for even greener job pastures this year? Consider one of these 10 job markets, expected to be tops for job opportunities, compensation, technology offerings and quality of life.

By Kim Fulcher Linkins

If the economy is indeed slowing, as many economists believe, companies this year will be needing fewer new IT hires than last year, which may put a damper on many cities now perceived as hotbeds of technology opportunity.

But there are several markets that technical recruiters say should weather the year very well, regardless of what happens in the greater economy. Following are the 10 cited as the best bets for job seekers this year.

Chicago

Even after a large wave of layoffs early last year, Chicago's IT community isn't suffering any ill effects, Len Tenner says. "There's not too much of a downturn. Anyone let go is being picked up by other businesses," says Tenner, CIO at Sageo LLC, an online health care and welfare benefits provider.

In fact, Chicago is the third-largest employment market for IT labor, Tenner says. Currently, Windy City employers have large "help wanted" signs out for Java programmers, Unix technicians, networking professionals and people with Oracles. So-called soft skills in demand include project leadership and the ability to communicate, according to Tenner.

Boston

The increase in demand for management professionals who have technical as well as leadership skills is leading some companies in Boston to get creative with their compensation. Publisher Houghton Mifflin Co., for example, has used things like game rooms and American Express Co. bonus checks to woo management personnel, says Mark Mooney, senior vice president and CIO at Houghton Mifflin. "There's no telling what other companies may be doing," he says.

Boston, known for some time as a top high-tech center, is becoming quite a draw for the younger crowd, says Mooney. The internationally known colleges and universities in the area make for a lot of young, energized blood, he says.

Mooney says companies like Oracle Corp., Sun Microsystems Inc. and San Jose-based Cisco Systems Inc. are building regional centers in the area.

IT professionals are needed in almost every industry, and positions in networking, databases and applications such as Oracle Suites and PeopleSoft are in particularly high demand right now. People who have skills in infrastructure and routing and data communications are also highly sought after, Mooney says.

Salary ranges for jobs in high demand in the Boston area include $120,000 to $140,000 for project managers, $80,000 to $120,000 for network managers, $70,000 to $95,000 for senior systems programmers and $45,000 to $70,000 for programmer/analysts.

New York

Call it culture shock. "New York City's lifestyle is one of great cultural advantages and a relatively high cost of living," says Robert Hedlund, director of technology services at Consolidated Edison Company of New York. "For the most part, we hire people living in the New York area. For people outside New York, the biggest cultural change is moving to this area and everything that entails."

For those who can get over the shock, IT positions are abundant, especially in the financial services industry, Hedlund says. "We're finding that the skills most in demand include network specialists, Unix experts, experienced Web developers and Internet hardware specialists," Hedlund says. Top-notch business analysts continue to remain in short supply, he adds.

In addition to the technical skills a candidate needs for an IT position, Hedlund says companies in New York are increasingly looking for well-rounded individuals who understand business as well as technology.

Atlanta

Jim Lynn, vice president of MIS at Cotton States Mutual Insurance Co., says IT managers who have technical know-how in combination with the ability to compel IT professionals to get behind a project and see it through are in demand in Atlanta. Lynn says a high premium is paid for people with such leadership skills.

Even before the Olympic Games were held there in 1996, Atlanta had a robust economy, and there's no sign of it slowing down, he says.

"The hottest industries for IT folks continue to be software and insurance, with positions in distributed applications and databases being most in demand," Lynn says. "Atlanta has a growing need for people skilled in Java and HTML." But employers also need IT professionals who have soft skills like leadership and management.

Philadelphia

An employee recently apologetically explained to Charles Brennan that he was leaving his $35,000-per-year geographic information system (GIS) position at the Philadelphia Police Department for a $60,000-per-year GIS job in the private sector. "I told him, 'Don't apologize,'" says Brennan, deputy commissioner for science and technology at the police department. The abundance of IT jobs in the area makes Brennan's situation all too common.

The City of Brotherly Love has certainly embraced IT. Locals say the IT job market is tight, with the strong economy affording numerous opportu-

...panies are tailoring ... packages in order to ...ple with leadership skills.

ATLANTA's economy is robust, and the city needs people with cutting-edge skills such as Java and HTML.

IN WASHINGTON, the incoming Bush administration will spur a changing job market.

THE DURHAM Civic Center is in the high-tech haven of Raleigh/Durham, where Web development is hot.

SAN FRANCISCO treats IT professionals to a beautiful landscape and low unemployment rate.

nities for IT professionals — good for employees, but bad for employers.

"I thought it might ease up a bit because of a lot of the dot-coms going under, but it hasn't," says Brennan.

Most in demand in the area are Web and LAN skills, Brennan says. He adds that many companies are finding, too, that it is necessary to keep up the old skills like Cobol as well as to develop new skills.

Washington

Doo Rudy, manager of services and operations at Washington-based Potomac Electric Power Co., says most successful IT professionals in Washington need continuing educatioo to maintain and grow their skills.

"Personally, I teach IT at the college level on a part-time basis," Rudy says. "This forces me to continually maintain high IT skills."

With a new presidential administration comes a changed job market in Washington, Rudy says. "Even the stodgy electric utility industry, which is undergoing deregulation, has become a believer in the competitive edge brought about through technology," he says. "I believe this will grow at a more rapid pace with the incoming Republican administration."

Washington has a strong demand for people in networking, databases and systems programming, as well as applications programming with C++ and Java.

"Also, I cannot understate the need for good management over these technical people," Rudy says. Traits needed include a logical mind, creativity and the ability to work under pressure independently, he says.

When considering an offer in Washington, there are a few things to keep in mind, Rudy says. "For D.C., commuting is a mess and the cost of living is high. IT personnel should request flextime and telecommuting perks where feasible," he says.

Raleigh/Durham, N.C.

If you enjoy the high-tech life but want to scale back from the hustle and bustle of big-city life, then perhaps the Raleigh/Durham area is more your style.

Though Research Triangle Park is certainly known for high tech, many people don't know of the friendly atmosphere that's conducive to family life that this high-tech haven boasts.

Anything having to do with Web development, from data center management through coding, is definitely hot right now in Raleigh, says Kelly Wolfe, manager of computer operations at GE Mortgage Insurance Co. in Durham.

"All Web development is extremely hot. There are not enough qualified personnel that understand the infrastructure also," Wolfe says. "Old Cobol programmers are finally finding the market not too good — [it's] time to retool."

Raleigh companies are also looking for IT professionals with Java scripting, Microsoft Transaction Server development and infrastructure management skills, he says.

Silicon Valley

Even after the failure of multitudes of dot-coms, people still flock to this technology mecca, says Marilyn Stiborek, a recruiting manager at Commtouch Inc., an integrated-messaging services company in Mountain View, Calif. "It should be no surprise — cutting-edge technology companies are always a hiring draw," says Stiborek. "People want to go where the action is." And the Valley is still it.

Currently, Silicon Valley has a need for network and security managers and application-specific integrated circuit designers, Stiborek says, as well as people skilled in any networking protocols and Exchange 2000 migration and development. Stiborek says the hottest industries for IT professionals are wireless, networking, e-mail and messaging products.

Potential relocators should be warned that although the jobs are attractive in Silicon Valley, the housing situation isn't.

"It's very expensive to live in the [San Francisco] Bay area," Stiborek says.

Salary ranges for high-demand jobs include $80,000 to $100,000 for project managers, $100,000 to $130,000 for network managers, $75,000 to $100,000 for network administrators and $100,000 to $115,000 for security specialists.

San Francisco

"While San Francisco is an expensive area to live in, it isn't about the big house; it's about the things to see and do, all within an hour or two of the city — the beach, the mountains, wine country. There's no place else like it," says Greg Alexander, senior vice president of MIS at Sharper Image Corp.

The City by the Bay is loosening up a bit from the tight IT job market of a few years ago, locals say, but there is still plenty of demand for people with certain skills.

"We see the market softening a little because of the dot-com failures in the area, but there is still plenty of opportunity all over the San Francisco Bay area for IT professionals," says Alexander.

The unemployment rate in the area is still around 2.3%, Alexander says. Positions most in demand in the area include Java programmers, database administrators and technical project managers, Alexander says, while C programming and the traditional high-level languages that temporarily regained notoriety for Y2k projects are losing ground.

Sacramento

In California's state capital, the Sacramento Municipal Utility District tries to provide at least two weeks of training for each IT professional each year, says Hank Dale, manager of the district's information and technology department. "Continuously working to stay current is important," according to Dale.

In addition to emphasizing ongoing training, Sacramento boasts all of the amenities of many other areas of the state, such as moderate temperatures, cultural diversity and easy access to saltwater and freshwater activities. But Sacramento is more easy on the pocketbook, says Dale.

"The cost of living is very reasonable when compared to other California metropolitan areas like Los Angeles and San Francisco, though it probably won't look too reasonable to someone from a small town in the Midwest," says Dale.

Sacramento currently has needs for Oracle database administrators, SAP professionals, Unix and Windows NT administrators and Web developers. Also, "just about everything" related to enterprise resource planning or customer relationship management systems is in demand, Dale says. Junior-level salaries start at approximately $48,000 for programmers and reach about $82,000 for systems analysts. ◗

Linkins is a freelance writer in Austin, Texas.

Bridge Financing

DEFINITION

Bridge financing is short-term financing — usually a loan backed by equity — that's used by a start-up to pay for operating expenses during negotiations for a second-stage round of venture capital investment.

BY MARIA TROMBLY

IT'S IRONIC that companies that least need money have the easiest time raising it, while companies that are desperate for cash have the most problems finding it.

This is no more evident than today, at the height of the dot-com shakeout. Venture capital funds are still flush with cash, while a growing number of marginal online companies are going out of business.

But for some start-ups waiting for venture capital to flow in, there's another source of financing that could pay the bills until the big money arrives: bridge financing.

Not So Fast

There are quite a few companies hoping to stay alive long enough to get that second round of financing. But the old rule holds true here as well: The dot-coms that most need short-term money are the ones that are least likely to get it.

"Getting bridge financing in this market — if you are a dot-com company — is virtually impossible," says David Zale, an analyst at Sands Brothers & Co. in New York. "If someone were asking me if I wanted to provide bridge financing to a dot-com that might have a good business plan but desperately needs cash, I would probably let them go out of business."

The reason? Bridge financing lenders are in it for the short term — they want to be certain that there's a second round of venture financing coming.

In practice, it may actually be more difficult to get bridge financing than it is tn get second-round venture capital funding.

"We've become much more careful about assessing 'refinanceability,' " says Ken Wolfe, co-founder and CEO of StoneGate Partners LLC, a private equity investment bank in Boston.

Wolfe says he needs to be 90% certain that a start-up will get second-stage funding before he makes a bridge loan.

He says he also looks for a company that has a solid management team, as well as assets that could be sold off in a worst-case scenario.

There's still plenty of venture capital out there, Wolfe says, and there are plenty of start-up companies that will get funded.

"Those funds have not disappeared, but the [funding] cycles have gotten longer," he says, In addition, the venture capital funds have begun to concentrate their investments, meaning that fewer companies will get money.

How It Works

The way the investment cycle usually works, according to Wolfe, is that a friends-and-family round of financing, usually totaling between $1 million and $2 million, is followed by a first stage of financing, typically totaling between $3 million and $5 million. This money is used to develop the product and find the first set of customers.

Later-stage funding generally ranges between $15 million and $25 million and is used to develop the market for the product, Wolfe explains.

A lot of bridge financing is provided by the early-stage investors themselves, Wolfe says.

Third-party bridge financing is a private market, so it's hard to estimate its size. Wnlfe places it at approximately $500 million per year.

StoneGate ainne provided around $30 million in bridge financing to seven companies last year. The company says it expects to provide about $100 million in funding this year.

One of the firms StoneGate funded was Marathon Technologies Corp., a Boxboro, Mass.-based company whose software is designed to prevent Windows applications from crashing.

Marathon borrowed $3 million to take it through the first four months nf last year, says Robert Glorioso, the company's co-founder and CEO.

Then, in the first week of May, $25.2 million came from venture capitalists.

Glorioso says that in this particular instance, investors who loaned Marathnn money through StoneGate later decided to convert the loan into equity instead of simply reclaiming their money plus interest. In effect, these investors were able to invest alongside the venture capitalists.

According to Wolfe, the investors that StoneGate brings intn these deals are accredited investors — sophisticated individuals, such as CEOs of large corporations, who have the ability and interest to make their own investment decisions but aren't interested in becoming angel investors and helping to run companies. Minimum investments such as these typically run aronnd $50,000.

"It's a good deal for everyone," Glorioso says. "The company gets the money it needs to bridge through a slow period, and the investors get into a deal that they otherwise wouldn't be able to get into."

More Money

According to Andy Clapp, a partner at Brook Venture Fund LP, a venture capital firm in Boston, the amount of bridge financing available to companies has actually increased in recent months.

"What's driving it is the tightening within the equity market and the difficulties that some companies — actually, many companies — have raising that later equity round," says Clapp.

The supply is rising as the need rises, he says, with approximately a half-dozen dedicated funds, such as StoneGate's, already in place. In addition, other funds are getting involved in bridge financing, as are some brokerages.

According to Clapp, bridge financing is more expensive than taking out a loan at a bank. A typical loan could run a company between 9% and 11% in interest per year. When factoring in the ability to convert at least part of these investments into equity, bridge financing can often deliver total returns in the 20% to 30% range, he says.

The interest rates are higher than bank loans because the investor is taking a bigger risk by lending money to a start-up.

By comparison, pure equity investors expect a return on investment of between 40% and 80% per year, Clapp says — but their investment could also vanish overnight.

Bridge financing is a debt and has a repayment obligation, Clapp explains.

"Equity does not have a repayment obligation, and you pay a premium for risk," he says.

> It's a good deal for everyone. The company gets the money it needs to bridge through a slow period, and the investors get into a deal that they otherwise wouldn't be able to get into.
>
> ROBERT GLORIOSO, CO-FUNNDEN ANU CEO, MARATHON TECHNOLDGIES

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JOE AUER/DRIVING THE DEAL

A 'Top-Down' Look In Challenging Times

AS THE DAILY MEDIA DRUMBEAT of "economic downturn" picks up volume, we'll no doubt be challenged to optimize IT costs and value as we move into possibly tough financial times. So doing better deals and managing vendors better will become much more important for IT organizations this year.

Traditionally, most IT organizations view their technology deals from the bottom up. That is, they tend to have a project-oriented perspective rather than a big picture-oriented overview. While there's nothing wrong with this approach — especially if it's coupled with a disciplined procurement process — you may miss opportunities to leverage major negotiating power.

Of course, focusing on a specific deal is important and can add value to the organization. But if you pay attention to only one deal at a time in uncertain economic times, huge cost and risk issues may go unaddressed. It's the age-old "not seeing the forest for the trees" thing.

If you have to cut costs significantly, you should look at IT spending from the top down, identifying each major spending area. An excellent way to do this is to look at your annual IT budget. The major budget categories — hardware, personnel, software, communications, services and the like — provide a high-level indication of where the big money is going.

Armed with this information, you may be able to find opportunities to cut significant costs and risks and maximize your vendor's attention. Remember, technology vendors are also under financial pressure and need all the business they can get. They may be willing to cut you a break in order to keep your business.

An analysis of each spending category should include adding up what you spend globally with each of your largest suppliers. You may be shocked at how much bargaining power you have but aren't using.

Then, review the existing contractual relationships with those suppliers since you may have contractual restrictions such as cancellation fees that have to be included in your analysis. When you're done, you'll find opportunities to consolidate spending, leverage your negotiating power, reduce costs and improve contract protections.

After the spending categories have been identified and totaled, they should be prioritized. There are many approaches to prioritization. A simple method involves rating each category according to four criteria: cost, complexity, risk and business need. You can weight each criteria using a 10-point scale to generate a numerical score that can be used to prioritize the opportunities. A 1 would be the lowest rating and a 10 the highest. A category with very high cost, complexity, risk and business need would rate four 10s for a total score of 40. Let's look at each factor:

■ **Cost** is obvious. Areas of significant spending should receive more attention than the nickel-and-dime stuff.

■ **Complexity** is important because spending areas involving sophisticated, new or unproven technology, or complex business processes should receive scrutiny.

■ **Risk** goes hand-in-hand with complexity because the higher the complexity, generally the greater the potential risk. But risk should be evaluated separately. A category with a low complexity rating could carry a high potential risk. In any event, and in every deal, have your suppliers at least be contractually accountable for nonperformance through clear warranties and sufficient remedies. That's a great start.

■ **Business need** establishes a relative value of importance of the category's overall contribution to the business — and the bottom line.

Joe Auer is president of International Computer Negotiations Inc. (www.globetrotdeals.com), a Winter Park, Fla., consultancy that educates users on high-tech procurement. ICN sponsors CAUCUS, The Association of High-Tech Acquisition Professionals. Contact him at joe@globetrotdeals.com.

With the categories having been identified, totaled, analyzed and prioritized, the real work can begin. Start with the categories that score the closest to 40 (highest priorities) and work your way down as far as time and reasonableness allow. Focusing on the highest priorities will ensure that your efforts are directed at achieving maximum benefit.

Developing the discipline to objectively scrutinize major spending categories and vendors creates opportunities that would otherwise go unnoticed.

A tough-times strategy to leverage purchasing power, reduce costs and maximize vendor performance goes a long way to answering an economic wake-up call. ◗

BRIEFS

E-Customer Service in Europe Graded Low

The quality of customer service provided by commercial and government Web sites in four European countries is "disappointing," according to the authors of a new study. Only 12 of 202 sites studied in Germany, Austria, Switzerland and the U.K. were rated as "very good" in a study conducted in November and December by consulting firm Mummert + Partner Unternehmensberatung AG in Hamburg, Germany, and The Fachhochschule Munster University of Applied Sciences in Steinfurt, Germany.

Web sites were rated on a point system according to four criteria: construction and navigation; company and product information; advice and guidance; and value-added services.

Corporate Yahoo Sales Grow

Santa Clara, Calif.-based Yahoo Inc. last week said it has signed 18 customers for Corporate Yahoo, the company's portal business, since it became available six months ago. Corporate Yahoo allows businesses to customize Internet content and services on their Web sites and to integrate them with proprietary corporate content and applications behind firewalls.

Merant Buys Web Development Unit

U.K.-based Merant PLC last week acquired the enterprise division of NetObjects Inc., which makes content management and Web site development tools, in an $18 million deal. Approximately 40 employees in the NetObjects division will transfer to Merant.

IBM, which owns a large equity stake in Redwood City, Calif.-based NetObjects, plans to make a limited equity investment in Merant after the deal closes.

Sharing Memories

The first wave of the e-commerce revolution may be petering out, but one online publisher is trying to make sure the stories of the front-line workers who were the grunts in the field for the dot-coms aren't lost. New York-based 'umbershoot Ltd. (www.umbershoot.net) is putting together what its founders describe as a combination collaborative book project and idea bank.

Former dot-commers are invited to contribute stories about their personal experiences and ideas (both successful and unsuccessful) to guide both experienced and newbie e-commerce entrepreneurs through the minefield of online commerce.

EXECUTIVE TRACK

Anthony L. Politano last week was named CEO of the U.S. division of MIS AG, a global business intelligence firm based in Germany. Politano has more than 14 years of experience in the IT industry, specializing in business intelligence, data warehousing and large-scale application development. Most recently, he served as MIS's vice president of consulting services in the US.

Dalton Edgecomb was recently named chief financial officer of videoconferencing equipment firm PictureTel Corp. in Andover, Mass. Edgecomb replaces interim CFO Ralph Takala, who will stay on in a consulting role, according to PictureTel officials. Edgecomb most recently worked for Zolfo Cooper LLC in New York and Arthur Andersen LLP in Chicago, where he specialized in corporate restructuring.

Rephael Inbar was recently named CEO of Magic Software Enterprises' newly acquired subsidiary, CoreTech Consulting Group Inc., an e-business service provider. In his dual role as CEO of Magic's North American operations and CEO of CoreTech, Inbar will lead the integration effort to merge the two companies' operations. Inbar replaces David Moore, former CEO and a founder of CoreTech.

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TECHNOLOGY

STREAMING AUDIO STORAGE ARCHIVE

XM Satellite Radio, which plans to roll out a satellite-based digital radio service in the U.S. this summer, is relying on a 22TB storage-area network to make it all possible. ▸ 64

SECURITY JOURNAL

What are users' e-mail rights? When is it legal to monitor employee e-mail? Security manager Jude Thaddeus finds answers — and more questions — at a seminar on the legalities surrounding corporate e-mail. ▸ 66

QUICKSTUDY

To be intelligible, data that's transmitted by any means, electronic or otherwise, must rise above any accompanying noise. The measure of that intelligibility is called its signal-to-noise ratio. Find out more about it in this week's primer. ▸ 70

EMERGING COMPANIES

Liaison Technology aims to do a better job of matching e-commerce customer searches to the right products by incorporating data from both structured databases and nonfielded product documents. But is its innovative technology enough to compete against established competitors? ▸ 71

MORE

CHIP DiCOMO, network manager at Hellmann Worldwide Logistics, makes use of both NDS and LDAP directory services

DIRECTORY COEXISTENCE

THE PROLIFERATION of competing directory services in corporate IT comes just as their importance is growing. Many companies are struggling to maintain a mix of directory services. And if that weren't enough, IT managers must also contend with a slew of other directory-enabled applications. But until companies can standardize on one directory, coexistence may be the best option.

68

BRIEFS

E-smith Enhances Linux Server Suite

E-smith Inc. has added virtual private network support and secure Web mail features to its Linux-based E-smith Server and Gateway software, giving remote workers direct connectivity to their offices and improving communications for small businesses, according to the Boston-based company. The new version, which can be installed on any Pentium-class PC, supports Point-to-Point Protocol over Ethernet, used by some residential Digital Subscriber Line services, and retails at $595 for an annual license.

Macro 4 Offers Linux Output Management

U.K.-based Macro 4 LLC has announced the availability of its UniQPrint output management application for Linux, adding easier printing, faxing and Web site posting capabilities for enterprise Linux users, including those on IBM S/390 systems, according to the company. Previously available for Unix and Windows NT systems, Macro 4 UniQPrint is priced at about $6,000 per Linux server and provides extensible output for many Linux distributions, including Red Hat 6.x, SuSE 6.x and Caldera OpenLinux 2.x, the company said. The S/390 version starts at about $12,000 per server.

'Tahoe' Enters Beta

Microsoft Corp. last week announced the branding and release of the final beta version of its portal integration server software, which has been commonly referred to by its code name, "Tahoe."

Tahoe, now dubbed SharePoint Portal Server, aims to provide one central "intranet portal" interface from which users can locate information scattered throughout the enterprise, whether it's on file servers, Web servers, Microsoft Exchange public folders, a Lotus Notes database or other sources, a Microsoft spokeswoman said. SharePoint Portal Server also features document management capabilities such as check-in/checkout, version tracking and approval routing. The product is due to ship this spring.

Satellite-Based Radio Tunes in to SAN Tech

Start-up plans to debut 100 channels of streaming audio capability this summer

BY LUCAS MEARIAN

PICTURE YOURSELF hopping into your car in New York, tuning to any one of 100 radio stations and listening to it all the way to Los Angeles. XM Satellite Radio Holdings Inc. plans to roll out that capability this summer, and it's relying on a big storage-area network (SAN) to make the satellite-based digital radio service possible.

The details of the 22TB SAN project were announced last week by Washington-based XM and IBM, which is supplying the underlying servers and RAID storage devices. XM was also scheduled to launch the first of its two planned satellites, but that effort was delayed by a last-minute mechanical glitch. A new launch date is scheduled for Feb. 28.

The second satellite is due to follow in mid-April, and the pair will be used to broadcast music, sports and talk-radio programs digitally throughout the continental U.S., calling on a library of 1.5 million digital audio files that will be stored on the SAN. The files will be sent through IBM Netfinity servers to a satellite uplink and then beamed to car radios equipped to accept XM's service.

The radio network will have more than 80 disc jockeys who will be able to simultaneously access a vast array of music and pipe it out across 100 satellite channels to users who pay $9.95 per month, according to XM. The service is expected to start up in late summer, the company said.

The storage technology being used by XM isn't unique, but analysts said the sheer scale of the SAN for the kind of use the company has planned breaks new ground. John Webster, an analyst at Illuminata Inc. in Nashua, N.H., said the storage network is the largest that he's aware of for use in streaming audio files.

XM and IBM claim that the SAN has enough storage capacity to hold more than twice as much information as is contained in the Library of Congress. That kind of capacity is required in order to support a 100-channel broadcast service, Webster said.

SAN SERVICES CONSULTANT Robert Ramos stands next to hardware that XM Satellite Radio will be using as part of a 22TB SAN archive of 1.5 million digital audio files.

Dan Tanner, an analyst at Aberdeen Group Inc. in Boston, said the use of SANs to store and retrieve digital video and audio files is increasing as available broadcasting bandwidth increases and the cost of storage technology plummets.

The SAN that will be used by XM costs in the "low seven digits" and includes 66 of IBM's Fast T500 RAID subsystems and four Netfinity 8500R servers, plus content management software developed by Paris-based Dalet Digital Media Systems, said Bob Mahoney, vice president of storage networking sales at IBM.

The digital radios needed to listen to XM's channels are being made by Tokyo-based Sony Corp. and other consumer electronics manufacturers and are expected to cost about $150 more than conventional car radios.

IBM Adds Online Diagnostic Service, Support for Its PCs

BY MICHAEL MEEHAN

IBM has announced plans to equip its new PCs with online diagnostic tools designed to create an automated help desk for users of the machines.

The computer maker is teaming with Redwood City, Calif.-based software vendor Support.com Inc. to create the online support service. IBM officials said users of the company's PCs will be able to access support and service via an online portal that can run diagnostics applications after a user inputs his name.

Once problems are found, IBM said, the online system will locate appropriate software patches or bug fixes and offer them to users for downloading. David Hume, director of services development for IBM's Personal Systems Group, said the new approach expands on a point-and-click online support model the company currently offers.

User Advantage

Analysts said the technology being promised by IBM addresses a major user complaint, but they added that it's uncertain how well the automated service system will work.

"People need stuff like this," said Roger Kay, an analyst at IDC in Framingham, Mass. "Even if it's not perfected, it's still good."

Rob Enderle, an analyst at Giga Information Group Inc. in Cambridge, Mass., said Microsoft Corp. has begun targeting much the same capability for its Windows 2000 operating system. Automated service is likely to be one of the main technical advances for PC users this year, he added.

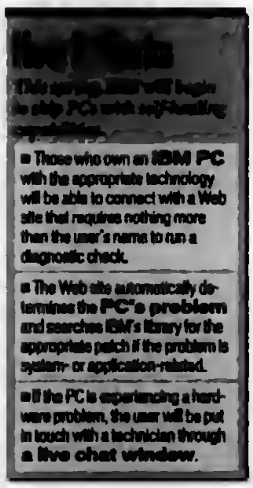
Toshiba America Information Systems Inc. in Irvine, Calif., and Hewlett-Packard Co. are among the companies developing the same kind of self-diagnostic capabilities.

Last year, HP began offering a downloadable diagnostic tool for its workstations — both Unix and NT — and its laptops. The online service is provided by Motive Communications Inc. in Austin, Texas, which performs similar functions for Dell Computer Corp. and Compaq Computer Corp.

Melody Sherwood, an e-support manager at HP, said her company plans to start preloading the diagnostics onto its machines by the middle of the year and that it may also preload Microsoft's PCHealth product for Windows Me.

But such offerings by different vendors need "to be handled consistently," Enderle warned. "Otherwise, the complexity of the tools gets in the way of their adoption."

The support technology will be added to IBM ThinkPad, NetVista, IntelliStation and eServer xSeries products, starting in the second quarter.



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Reading Employees Their E-Mail Rights

When is it legal to read your staff's e-mail? A seminar raises more questions than it answers

I ATTENDED A SEMINAR on e-mail and the law this week — a topic that's close to my heart. It's also close to the hearts of a lot of my colleagues, it seems, as the event was jam-packed.

The reason most of us were there is that it's very hard to get a straight answer on how existing laws apply to e-mail. It's even harder to get a professional opinion on the implications of various pieces of legislation that are coming into effect. The star attraction of the seminar was a partner from a well-known law firm who promised to speak on this issue, so her appearance was hotly anticipated.

Security Manager's Journal

It's clear that e-mail is a powerful tool for communication, and like any other powerful tool, it can be abused. As always with security, it's difficult to find numerical evidence of the scale of the abuse, but the anecdotal evidence is powerful. One knowledgeable Canadian speaker cited Oliver North and the Iran/contra affair as one of the first examples of the admissibility of e-mail as evidence in court. Another example he cited was the Rodney King beatings by police in Los Angeles. One LAPD officer who was jailed for his part in the affair had apparently mentioned in an e-mail that he had "never beaten anyone that hard in a long time." (That particular comment makes me wonder who the previous person to suffer that sort of a beating was.)

Gossip Gets Around

A more prosaic example cited by speaker after speaker was a recent incident in which a woman sent a salacious and highly complimentary e-mail to her boyfriend. He passed it on to four of his friends by way of a boast, who forwarded it to their friends, who forwarded it to their friends, and so on. Ten years ago, this sort of gossip would have spread around an office; now it spreads around three continents.

Intriguingly enough, this incident made the national news. The report I heard was dispassionate, impartial and merely stated the facts as they happened. Very professional, indeed. What I found amusing was that, at least on the copy of the e-mail I saw, a lot of the people doing the forwarding worked for the very news organization doing the reporting.

There's a whole mess of legislation that may or may not apply to e-mail and the Internet in our firm, and some of those laws seem to contradict one another. To complicate matters further, as a multinational company, we have to comply with legislatioo from many jurisdictions.

In the U.K., the Obscene Publications Act makes it illegal to distribute offensive material. The U.K.'s Telecommunications Act makes it an offense to transmit offensive material over telephone lines. Then there's the European Union's Data Protection Directive and the EU commissioner's Draft Code of Practice, which restrict a company's ability to monitor employees' e-mail. That makes it harder to monitor for offensive material.

The Defamatioo Act makes it an offense in the U.K. to disseminate defamatory statements, including any via e-mail. In a high-profile defamation case about a year ago in the U.K., one insurer successfully sued another over internal defamatory e-mails. However, the same act allows a defense of innocent dissemination, which recognizes that there is no offense if you don't know that you're disseminating such statements.

So if I send out a defamatory e-mail, the victim can't sue my Internet service provider for passing on the e-mail because it had no knowledge of the statements. But — and there are a lot of *buts* in all of this — if the victim were to alert my Internet provider to the fact that I was defaming him, then the provider would have to take action, as it is no longer innocent of my activity.

Is that clear? Good. Now on to the more complicated stuff.

The U.K.'s Electronic Communications Act makes digital signatures legally binding in certain formats. I've heard another opinioo that claims that an 18th-century trading act already legalizes digital signatures, as it recognizes the inteot to be bound by a signature rather than the form of signature.

This provision was apparently included to allow illiterates to sign a contract with an "X," but I'm told it's been used in one case where an e-mail was held to have formed a legal contract. The sender typed his name at the bottom and intended that to be his signature. The sender, an accountant, sent ao angry e-mail to his company resigning his partnership in protest over a disagreement, then thought better of matters and attempted to withdraw his resignation. His managers beld him to his resignation and successfully claimed that his typed name was a valid signature.

We recently added the Human Rights Act in the U.K., which, among other things, enshrines a right to respect of privacy and freedom of expression. It seems that this would mean that we shouldn't monitor employees' e-mail.

However, this act applies only to public authorities. My company isn't a public authority, so presumably, it can monitor employees' e-mail. But courts are public authorities and have been told to apply this act to cases in their jurisdiction. So, can we monitor or not? The Regulatioo of Investigatory Powers bill says we have to provide law enforcement access to our systems on demand, so we have to at least have the ability to monitor. Well, we do in the U.K. anyway, but guess what? Our e-mail systems are worldwide.

Living Vicariously

Of course, when the lawyer stood up to talk at the end of the day, she didn't address all our concerns but instead raised more — such as the concept of vicarious liability. A company in the U.K. has vicarious liability for any actions taken by its staffers while they're acting in its name. If a user sends an e-mail from john.doe@companyname.com, does that count as acting in the company's name? By the end of the day, I had more questions than answers, but at least they're more detailed questions, and at least I know more about the issues. One thing I did come away with is a possible resolutioo to the problem of whether you're allowed to monitor employee e-mail.

Three Questions to Ask

One speaker with experience with such cases in the U.S. suggested three questions to ask when considering whether an intrusioo into someone's mail file is justified:

- Did the persoo have a reasonable expectation that his mail would be private? If you explicitly tell your employees that their e-mail will be monitored, then they can have no illusions of privacy.
- Was the intrusioo for a legitimate purpose, such as to monitor compliance with company policies or an investigation into alleged misconduct?
- How far did the intrusion go? Did it go only as far as needed for the purpose?

The speaker suggested that if your employees have no good reason to expect their e-mail will be private, and if any investigation is for a specific reason and you doo't go too far, then you can justify reading your staff's e-mail. Random sweeps of staff e-mail just to see what the gossip is, or because you're bored and doo't get any good jokes yourself, would clearly fail these criteria.

I don't think these questions are enshrined in law, and I'm sure they won't apply in all cases. But they seem reasonable and sensible, so I think they're worth using.

SECURITYBOOKSHELF

The Code Book: The Science of Secrecy, from Ancient Egypt to Quantum Cryptography, by Simon Singh (Anchor Books, 2000). This is a very good read and shows the importance of good security. For example, I never knew that Mary, Queen of Scots' life was lost as a direct result of her mistakes in cryptography!

LINKS:

www.kub.nl/~frw/people/koops/lawsurvy.htm: The Bert-Jaap Koops Crypto Law Survey Web page offers a good introduction to the legalities of cryptography.

www.scl.org/content/articles/legal-issues-ecommerce-strategy.htm: Check out this document from lawyer Ben Goodger, who discusses developing an e-commerce strategy.

■ This journal is written by a real security manager, whose name and employer have been disguised for obvious reasons. It's posted weekly at *www.computerworld.com* to help you and our security manager – let's call him Jude Thaddeus – better solve security problems. Contact Jude at jude.t@ycos.com or click on *Computerworld.com*'s Security Watch community forum to participate in discussion topics.

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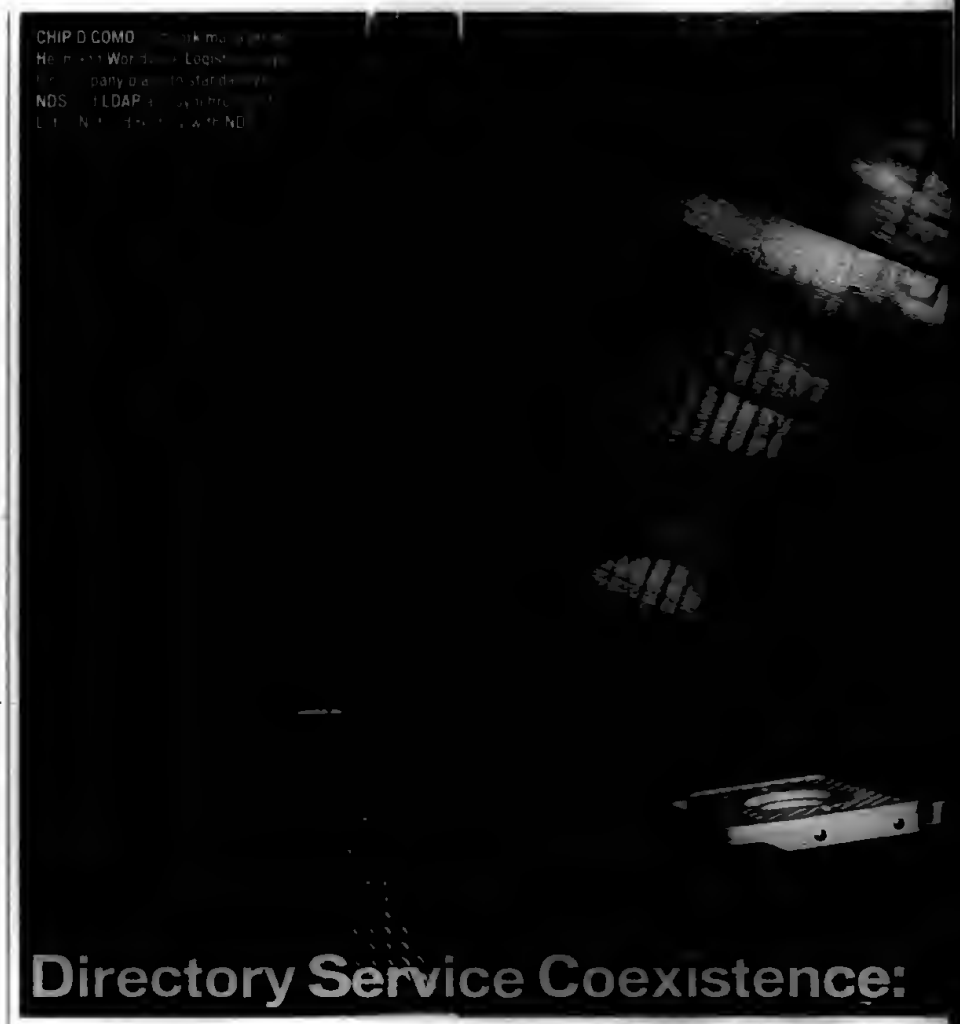


Directory Service Coexistence:

Can W Talk H

A WORLD WITH ONE DIRECTORY? Forget it. Call it directory diversity. Companies are struggling to maintain a mix of directory services, including Novell Directory Services (NDS), Windows NT, Windows 2000's Active Directory (AD) and Lightweight Directory Access Protocol (LDAP) services. And if that weren't enough, IT managers must contend with a slew of other directory-enabled applications, such as Lotus Notes.

This proliferation creates challenges for IT managers who must plan a coherent directory strategy and for administrators who must wrestle with adding, deleting and modifying users. While the benefits of a single directory — reduced overhead and ease of administration — are clear, IT managers say the likelihood that large organizations will be able to standardize anytime soon is small. For now, your best bet may be to combine directory administration for efficiency.

A Slow Consolidation

"We're going to move from NDS to AD at some point, but it isn't happening fast," says Mark Thorsen, network services manager at the New York Times Shared Service Center in Norfolk, Va., which provides IT services to The New York Times Co.'s business units. Slowing the transition is the usual resistance to change, as well as the time it takes to resolve organizational and technical issues.

For example, the service center uses MetaFrame from Citrix Systems Inc. in Fort Lauderdale, Fla., to give application access to remote and mobile users. Although MetaFrame runs on Windows NT, it writes passwords differently, which complicates the process of integrating those users into NDS and AD, Thorsen says. So the center must straddle two directory worlds.

Campbell Soup Co. in Camden, N.J., is in a similar situation. Although the company is migrating from NDS to AD, "we are not rushing. We want to see how this works out," says Mike Giresi, director of global communications. In the meantime, the company must administer both NDS and AD, as well as a Lotus Notes infrastructure and human resources software that needs to be tied into whatever corporate directory emerges.

Administering multiple directories is a labor-intensive, tedious chore. "We have a couple of people who do nothing but maintain the directories," Giresi says. Administrators must handle changes manually in the various directories using different tools.

Hellmann Worldwide Logistics Inc., a Miami-based global freight forwarding company, manually updates its global corporate directory via e-mail. "Right now, the process happens weekly, but we'd like to get out of the address directory distributioo business," says Chip DiComo, network manager at Hellman.

For most organizations, the problems revolve around NDS, Windows NT and AD. While all the directories deliver the same services, they approach the task in fundamentally different ways. AD, for example, replicates all the information to every copy of the directory. If a link goes down, users can still run services locally. NDS keeps exclusively local information local but requires the directory to fetch more general information about group privileges and authorizations from a centralized directory across the network, explains Ferguson.

The differences present a challenge to administrators. NDS administrators are accustomed to viewing things hierarchically but being able to grant privileges to any organizational unit. In AD, administra-

Until corporate IT can consolidate on one directory, coexistence may be the best option. By Alan Radding

tors grant privileges through high-level domains, which don't allow control at the same low level of granularity as NDS.

Although a single directory clearly has operational advantages, it's not likely to materialize.

"We see directories playing three roles, and we have yet to see one product that can play all three roles equally well," says Jamie Lewis, CEO of The Burton Group Corp., a Midvale, Utah-based research firm. One role is as the enterprise directory, which provides the global catalog of corporate resources and the centralized address book. A second role is as the network operating system directory, which manages access to resources on the network. The final role is as the extranet/e-business directory, which supports online portals. Even among network operating system directories such as NDS and AD, where a single directory is clearly preferable, "many companies have multiple directories," Lewis notes.

Hellmann Worldwide intends to get out of the manual directory distribution business by standardizing on NDS and LDAP and synchronizing its Lotus Notes directory with NDS through the use of Novell Inc.'s DirXML product. "We can use DirXML to populate NDS in near real time," explains DiComo. Such synchronization eliminates the need to enter information into each directory separately.

Hellmann's NDS strategy faces one possible problem: A server farm that handles thin-client Windows applications requires authentication through Windows NT. DiComo says he plans to run Novell's NDS for NT to control Windows NT authentication.

Peaceful Coexistence

The multiple-directory challenge is coexistence — how to manage and administer the directories. Options include manual synchronization, LDAP, one-time/one-way migration tools, synchronization middleware and metadirectories, notes Lewis.

Synchronization — automatically replicating changes in one directory across all others — is critical, but manual synchronization, as Giresi notes, is costly, slow and error-prone.

"LDAP is the directory common denominator, but it is the least interoperable and is unwieldy," says Lewis. LDAP defines a set of application programming interfaces that most of the directory products support, including NDS and AD. However, it doesn't perform synchronization.

The directory vendors and third parties also provide one-way migration tools that will copy and merge an NDS or Windows NT tree into an AD tree. Fairfax County Public Schools in Alexandria, Va., for example, is using DM/Administrator from Fastlane Technologies Inc. in Halifax, Nova Scotia, to migrate Windows NT domains to AD.

"It eliminates the most time-consuming piece and leaves me a way to back out if things don't migrate right," says David Elliott, system software supervisor for the school system. It also gives administrators a single interface through which they can manage both directories until the migration is complete. But it doesn't automatically synchronize changes.

For ongoing synchronization, IT needs synchronization middleware such as Orem, Utah-based NetVision Inc.'s Synchronicity, which automates changes between different directories. New York Times Shared Services is using Synchronicity to automatically synchronize directory changes between NDS and AD, enabling the organization to live with both directories for an indefinite period. With Synchronicity, a New York Times administrator creates, removes or modifies an account using a familiar NetWare administration tool, and the changes propagate into NT and AD. The company says it will eventually migrate completely to NT/AD.

Minneapolis-based Martin/Williams Advertising Inc. runs on NDS but is piloting a terminal server that uses AD. "We're not going to run our business off AD, but we will need to add and delete users and change passwords," says help desk specialist Ryan Helmer.

For NDS/AD synchronization, Helmer turned to Microsoft Directory Synchronization Services (MSDSS), part of Microsoft Corp.'s Services for NetWare. "We don't have a complex tree structure — a handful of organizational structures one level deep — so it works pretty easily," he says.

The Metadirectory: A New Twist

Metadirectories add another layer that encompasses all the directories. Where synchronization middleware provides directory-to-directory synchronization, metadirectories "come in at a higher level and manage NDS, AD and other directories," says Lewis.

Envisioned as a massive directory containing all the other directories within it, the metadirectory has evolved into rules-driven software that joins and exposes information residing in and managed by the individual directories, says Michael Hoch, an analyst at Aberdeen Group Inc. in Boston.

Farmers Insurance Group of Companies in Los Angeles uses metadirectory tools from MaXware Inc. in Freehold, N.J., to manage its LDAP corporate directory, Lotus Notes directory, Windows NT domains and human resources application files as one giant logical directory. "We are using MaXware to connect applications to the different directories," particularly applications that don't offer an LDAP security interface, says Martin Leitner, manager of architecture and security infrastructure at Farmers Insurance.

Coexistence works well from an operational standpoint once IT puts a strategy for synchronization in place. After administrators have gotten over the different philosophical approaches of the vendors and become accustomed to the level of control they have, the administrative tasks are handled similarly.

Even the tools are similar. "Microsoft's management console seems to be directly modeled after Novell's NetWare administration tool," says Chopp.

With directories becoming increasingly central to the secure deployment of information resources, large organizations will have to learn how to live with multiple directories. Although it adds work, multiple directories may prove to be a lot easier than trying to impose a single directory standard. ◗

Radding is a freelance writer in Newton, Mass.

Signal-to-Noise Ratio

Signal-to-noise ratio, usually written as S/N or SNR, refers to the measure of signal strength relative to background noise in an analog or digital data transmission channel, signal or electronic device. S/N describes the clarity of the data transmission. If the background noise on a data communication line is higher than the signal, it can cause a reduction in data speed because the source computer will have to resend data packets that are misread due to extraneous noise.

BY LEE COPELAND

NOISE IS THE REAL enemy of data communications. Whenever electrons travel over a wire or radiate through space, they generate some electromagnetic noise. Therefore, whenever a data signal is sent across a transmission channel, such as a copper wire or a radio-frequency broadcast, background electromagnetic interference (EMI), or noise, accompanies that signal.

Signal-to-noise ratio (S/N) measures the amount of unwanted electromagnetic noise relative to a signal's strength. If the background noise on a data channel is higher than the signal, it can cause a reduction in data speed or a disruption in system circuit functioning.

That's why airlines require passengers to shut off all electronic devices, such as cell phones and laptops, before takeoff. This is a precaution to ensure that no electrical noise from these devices will disrupt the airplane's navigational, radio or fly-by-wire systems — admittedly a slight possibility.

Getting Wired

In the wired world, S/N issues are relatively easy to manage because of the closed nature of the environment. Take a typical corporate network, for example, where low-level noise from radios and other devices can cause interference. An Ethernet system running at 10 MHz would include a noise filter at the receiving end to eliminate unwanted signals above 10 MHz. Another method for increasing the S/N ratio is to amplify the transmission signal voltage.

Standards, such as Part 15 of the Federal Communications Commission's rules, regulate the amount of EMI certain devices are permitted to emit to minimize the impact of such interference on data transmissions.

An entire branch of electrical engineering is dedicated to maximizing signal strength relative to unwanted electromagnetic noise. In some complex devices, such as radio telescopes, lowering the temperature of the circuits to near absolute zero (–459 degrees Fahrenheit) minimizes EMI.

Still, high levels of unwanted EMI can require a source computer to resend data packets that are misread because of noise on a wired connection. This causes delays in receiving data transmissions.

Contending with S/N is of special concern in wireless communications because EMI can seriously degrade signal transmissions in two ways. First, the signal strength is relatively weak in wireless communications. A wireless signal dissipates at a significant rate — it's inversely proportional to the square of the distance traveled — as it radiates outward in all directions.

Follow the Bouncing Signal

Second, EMI can originate from numerous sources, including the natural environment. Power lines and radio towers can produce large amounts of EMI. Walls and buildings can block or attenuate signals.

Reflecting surfaces such as metals and even clouds can make signals bounce, which means the same signal can be received from several directions at different times, creating what's called multipath distortion.

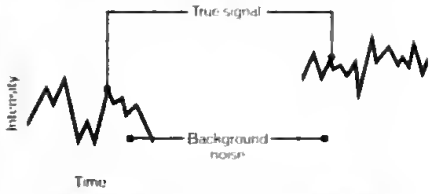
One technique for minimizing noise in wireless communications is frequency hopping, a spread-spectrum technique used by the Bluetooth 1.0 and the Institute of Electrical and Electronics Engineers Inc.'s 802.11 wireless Ethernet protocols.

The transmitter sends on one frequency for a predetermined short time (we're talking milliseconds), then hops to a different frequency for another period and so on. A specified algorithm determines the hop variation. Because the signal uses any given frequency for only a short period of time, the likelihood of problems of interference with or interception of the signal decreases.

Yet S/N can still be a problem. We can expect to see many Bluetooth-enabled devices this year, but don't look for them in your new car. Although Bluetooth seems a natural for retrieving diagnostic data from a car's engine, its implementation in vehicles is still far off because of S/N and EMI concerns.

There's a lot of high-energy electromagnetic energy flying around under the hood. "We need to ensure that there's no interference with other devices in the automobile," says Mike Hichme, a lead systems engineer at General Motors Corp. in Detroit. "Any time a microprocessor or switch transmits a signal wirelessly, it could interfere with [other] systems inside [the] vehicle."

When a signal is weak, it can sometimes be overwhelmed by background noise. In the electronics world, that can be residual noise in components, cosmic rays, interference from other electronic devices and more. As you can see in the diagram, when the signal level dips below that of the surrounding noise, its information content is lost. When a signal is strong, even its weakest parts are unambiguously clear of the noise, and thus there can be a greater difference of intensity (such as volume) between the lowest and highest parts of the signal. The amount by which a signal's maximum intensity exceeds its minimum detectable level (that is, the noise floor) is called its dynamic range and is usually measured in decibels.



S/N: It's Not Just for Electronics

Although the term S/N originated in the field of electrical engineering as a specific, quantitative measure, the concept itself properly applies to any method of communication, electronic or otherwise.

For example, smoke signals can be an effective means of long-distance communication for people who don't have electricity – as long as there isn't much surrounding environmental "noise," such as fog or rain.

Or consider a large cocktail party, where dozens of people may be talking at once. If you want to communicate with someone else, you have to move close enough that your voice (the signal) can be heard above the din of everyone else's chatter (the noise). In other words, you have to achieve a sufficiently high S/N.

Finally, look at the thousands of Internet newsgroups known collectively as the Usenet. One frequent comment I've heard from longtime Internet users (and indeed made myself on numerous occasions) – especially about many of the REC (recreational) or ALT (alternative, meaning totally unregulated) groups – is that "there isn't a high enough signal-to-noise ratio." In other words, too many people are posting messages with too little content; this is often the case when "flame wars" break out on a particular topic.

– *Russell Kay*

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Signal-to-Noise Ratio

DEFINITION:

Signal-to-noise ratio, usually written as S/N or SNR, refers to the measure of signal strength relative to background noise in an analog or digital data transmission channel, signal or electronic device. S/N describes the clarity of the data transmission. If the background noise on a data communication line is higher than the signal, it can cause a reduction in data speed because the source computer will have to resend data packets that are misread due to extraneous noise.

BY LEE COPELAND

NOISE IS THE REAL enemy of data communications. Whenever electrons travel over a wire or radiate through space, they generate some electromagnetic noise. Therefore, whenever a data signal is sent across a transmission channel, such as a copper wire or a radio-frequency broadcast, background electromagnetic interference (EMI), or noise, accompanies that signal.

Signal-to-noise ratio (S/N) measures the amount of unwanted electromagnetic noise relative to a signal's strength. If the background noise on a data channel is higher than the signal, it can cause a reduction in data speed or a disruption in system circuit functioning.

That's why airlines require passengers to shut off all electronic devices, such as cell phones and laptops, before takeoff. This is a precaution to ensure that no electrical noise from these devices will disrupt the airplane's navigational, radio or fly-by-wire systems — admittedly a slight possibility.

Getting Wired

In the wired world, S/N issues are relatively easy to manage because of the closed nature of the environment. Take a typical corporate network, for example, where low-level noise from radios and other devices can cause interference. An Ethernet system running at 10 MHz would include a noise filter at the receiving end to eliminate unwanted signals above 10 MHz. Another method for increasing the S/N ratio is to amplify the transmission signal voltage.

Standards, such as Part 15 of the Federal Communications Commission's rules, regulate the amount of EMI certain devices are permitted to emit to minimize the impact of such interference on data transmissions.

An entire branch of electrical engineering is dedicated to maximizing signal strength relative to unwanted electromagnetic noise. In some complex devices, such as radio telescopes, lowering the temperature of the circuits to near absolute zero (–459 degrees Fahrenheit) minimizes EMI.

Still, high levels of unwanted EMI can require a source computer to resend data packets that are misread because of noise on a wired connection. This causes delays in receiving data transmissions.

Contending with S/N is of special concern in wireless communications because EMI can seriously degrade signal transmissions in two ways. First, the signal strength is relatively weak in wireless communications. A wireless signal dissipates at a significant rate — it's inversely proportional to the square of the distance traveled — as it radiates outward in all directions.

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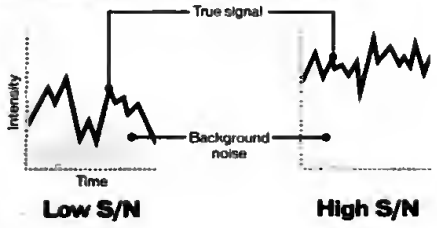

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Start-up's Tools Build Better Online Catalog

Liaison's technology lets users create more accessible e-commerce catalogs

BY AMY HELEN JOHNSON

LIAISON Technology Inc. wants to bridge the gap between how merchants store their data and how buyers look for products. The Austin, Texas-based start-up's e-commerce application can find online catalogs and load into them both the database data that merchants rely on, such as stock keeping units (SKU) and inventory status, and free-form information, such as product descriptions, that buyers prefer when searching for items.

The key capability of Liaison, says company CEO Matthew Kallis, is that it can find the latter type of information, which he dubs "glossy" or "branding" content, even when it's stored in relatively unstructured formats such as Microsoft Word documents or Web pages. Liaison relies on technology that it calls Adaptive Content Recognition (ACR) to identify this information within files. ACR, says Kallis, is the engine that drives the company's two products, Liaison Content Exchange and Liaison Express.

The Key: Pattern Recognition

To use Liaison Content Exchange, a content expert builds an example of the desired data, specifying any rules that need to be applied to the data (for example, translating from one currency to another). Content Exchange uses that example to find and process data in designated files. Once a merchant creates a catalog, Liaison Express takes over to automatically update dynamic information such as the quantity on hand or order status.

ACR's example-driven interface emulates the query-by-example process familiar to database users. Liaison Content Exchange also works with many different types of files, but it can't work with just any type of data, says co-founder and chief technology officer Daniel P. Miranker.

There has to be some rudimentary structure so that the content expert can mark it for the ACR engine. A random word-processing file won't be a good source for Liaison, Miranker says, but something like a product data sheet, with a layout and blocks of related text, will work.

Pierre Mitchell, research director for e-commerce at Boston-based consultancy AMR Research Inc., says Liaison is tackling a big problem enterprises face as they move sales and procurement online. Much important content is locked into spreadsheets, Adobe Acrobat files, enterprise resource planning systems and the like, Mitchell says, and isn't easy to extract and reformat for electronic catalogs.

However, he warns, companies have to meet certain requirements if they're to get any benefit from using Liaison's tools. The data must be in electronic form, and it must be clean. Erroneous data that the software can't satisfactorily cleanse will be marked for manual resolution, which cuts down on the product's time and efficiency savings.

Furthermore, says Mitchell, the more you use Liaison's software, the more valuable it becomes. Building the initial catalog is costly, he says, but the efficiency of making updates reduces that cost, so the best use of Liaison is in enterprises that need to maintain a catalog, not just create one.

One Tool Among Many

Aaron Martin, chief business development officer at Dulles, Va.-based EqualFooting.com Inc., a public online marketplace serving industrial and construction companies, says Liaison's products don't solve the whole problem but are part of his catalog-management tool set. That tool set includes XML connectivity capabilities from Fairfax, Va.-based WebMethods Inc., Santa Clara, Calif.-based Cardonet Inc.'s classification tools and conversion services from several other vendors.

Previously, EqualFooting.com asked its supplier members to post files to an FTP site and then loaded those files into the marketplace's database. The marketplace offers about 35,000 SKUs, says Martin, which are provided by about 11 major participants. Now, he says, Liaison lets the company's supplier integration team lift the necessary data out of the suppliers' back-end systems automatically.

The savings comes from the team having to spend less time keeping catalogs up-to-date; the initial loading process takes about as much time as the FTP method, he says. Because EqualFooting has been using Liaison for less than six months, Martin says it's too early to calculate any return on investment.

Johnson is a Computerworld contributing writer in Seattle.

LIAISON USES ACR technology to find descriptive and database content, say founders Matthew Kallis (left) and Daniel Miranker.

Liaison Technology Inc.

COMPUTERWORLD emerging companies

Location: 11044 Research Blvd., Suite D-100, Austin, Texas 78759

Telephone: (512) 345-0020

Web: *www.liaison.com*

Niche: Online catalog management

Why it's worth watching: Automates Web catalog creation and updates; incorporates non-fielded descriptive text as well as fielded database content.

Company officers:
- Matthew Kallis, CEO and co-founder
- Daniel P. Miranker, chief technology officer and co-founder

Milestones:
- 1998: Company founded
- January 2000: Express ships
- April 2000: Content Exchange debuts
- August 2000: Express Version 2 released
- September 2000: Content Exchange Version 2 released

Employees: 100; 400% growth per year

Burn money: $15 million from Austin Ventures, SSM Ventures, Techxas Ventures, Dell Ventures, Comdisco Inc.

Products/pricing: Liaison Content Exchange, $135,000; Liaison Express, $75,000

Customers: Spark-Online, ApplianceOrder.com Inc.

Partners: VerticalNet Inc., Cardonet Inc., Arbortext Inc., Vignette Corp. and others

Red flags for IT:
- No standard for bringing catalog information into an online exchange exists yet.
- Data sources such as product sheets still must have a basic structure that Liaison's pattern recognition engine can identify.

[the buzz STATE OF THE MARKET]

Billion-Dollar Baby

The Yankee Group in Boston says it expects catalog management software and services to grow from a $1.89 billion business in 2000 to a $4.09 billion business in 2004. The three main users will be independent online marketplaces, large enterprises that are putting their private procurement systems online and sellers that wish to create an easier buying channel for customers.

Assembling an online catalog usually happens one of two ways, says Yankee analyst Jon Derome. The first approach is to outsource the job to a service bureau that does most of the normalizing of data with specialized tools or by hand. Derome says that small and medium-size enterprises are likely to opt for this method because their data often isn't stored neatly in a database. Instead, spreadsheets, word processing files and files associated with producing print catalogs are more probable storage media.

The second method involves automatically converting data stored in databases and publishing it directly on the Web. Companies use this approach when dealing with large volumes of data from multiple sources and the priority is to keep it arranged in an organized way.

Late to Market?

Liaison is at a disadvantage relative to its competitors, says Derome, because the company's marketing and positioning push was late compared with those of its rivals. It's a tough call, he says, whether Liaison's technology will be enough to overcome the head start its competitors enjoy.

Cohera Corp.

Hayward, Calif.
www.cohera.com

Cohera's E-Catalog System, aimed at independent online marketplaces, combines live data retrieved on demand (such as availability information) from a selling member's site with static information (such as product descriptions) stored on the marketplace's systems.

Requisite Technology Inc.

Westminster, Colo.
www.requisite.com

Requisite markets a tool set for classifying catalog data and filling and maintaining the catalog. A service arm handles catalog conversions for customers. Requisite is active in standards efforts to create an XML specification and schema for catalogs.

- Amy Helen Johnson

Guides to Being There

The IT worker has become increasingly mobile, more willing to change locales as well as jobs. Before considering an offer from out of state, however, there are ways of checking out what you can really expect when you get there. By Erik Sherman

FED UP WITH HARSH Northeast winters, Sal Cincotta longed to live and work somewhere that would let him put his winter coats into cold storage.

So a year ago, the New York contract programmer began looking seriously at moving to a warmer climate. Florida seemed like a great choice — until he did some research using online job boards.

Companies in Florida "were paying considerably less than anywhere else in the country," says Cincotta. A few scattered job postings for Visual Basic programming, one of his specialties, promised $85,000. But Cincotta wasn't buying.

"You'll find those jobs are less secure," says Cincotta. "You're going to work for a company that's a dot-com start-up; maybe the funding's not there."

Eventually, Cincotta found himself a permanent job in Nashville as a senior technology specialist at Microsoft Corp. The job, and the new locale, were just what the doctor ordered. He says he's glad he took the time to check more carefully into what the reality of Florida would have been, and he now offers advice to other IT professionals considering major relocations.

What's It Like to Work in . . .

If you have the desire to move, no matter what the reason, there are many resources that will tip you off about the weather, cultural activities and lifestyle you can expect in other regions. Before packing your bags, though, it's wise to research the job and technology markets at your proposed destination. That means learning what skills are in demand, the local pay scales, the strength of the ecooomy and the business terrain.

The best way to determine the skills that are in demand and pay that you can expect is by looking at actual employment advertisemeots, according to Cincotta. Both Web-based job sites and technical magazines can offer some guidance on the pay you might expect.

Some publications even have yearly salary surveys that offer a national perspective. (*Computerworld*'s own survey, as well as its annual feature "100 Best Places to Work in IT," are available at *www.computerworld.com.*)

Online Want Ads

The Web sites of the newspapers in the area you're investigating will often have job listings that parallel those in their Sunday print editions. This can give you a concentrated view of the jobs and salaries you can expect. If job listings aren't available online, call the newspapers and have them send you a Sunday edition.

Salary Surveys

Another interesting source of salary information is the Salary Wizard at *www.salary.com*, a site operated by Wellesley, Mass.-based Salary.com Inc. Choose a job category and provide either a ZIP code or a metropolitan area from a list. The wizard takes national salary averages for that type of position based on information from human resources professionals and then weights them by location.

It's far from perfect, because IT salary patterns can vary from those of other fields. But it's a place to start. The site also provides links to several IT-related salary surveys.

But be forewarned that no salary survey can credibly forecast salaries for every IT job title in every city. The smaller the metropolitan area you're checking out and the more specialized the job, the less data probably went into calculating a salary average.

State Resources

It pays to check out the broader economy in the state you're considering. Obvious resources include chambers of commerce and economic development agencies.

Such organizations — easily found by searching under a city name on a search engine like Yahoo or by checking the state listings at Relocation Central's Web site — typically have lists of their member companies and employment and business statistics on their Web sites. But take the economic data with a grain of salt, because it's often promotional and sometimes geared toward specific marketing campaigns.

"They're here for one purpose — that's to promote the area," says Ryan Renz, head of newsroom computer and technology systems at television station WNEM in Saginaw, Mich. "Not everything's as great as they say it is. You have to he able to do comparisons wisely and know not everything is as it seems." ◗

Sherman is a freelance writer in Marshfield, Mass.

Relocation Resources

U.S. Census Bureau, County Business Patterns
www.census.gov/epcd/cbp/view/cbpview.html
See how industries rank by state and county, including annual sales and employment numbers.

U.S. Bureau of Labor Statistics, Economy at a Glance
http://stats.bls.gov/eag/eag.map.htm
View monthly employment data by industry and region.

U.S. Census Bureau, ZIP Code Business Patterns
http://tier2.census.gov/cbp/
This site offers information on business by size and industry in specific ZIP codes.

U.S. Department of Commerce, Technology Administration Reports
www.ta.doc.gov/reports.htm
Get reports on the economic performance of industries, as well as IT employment by state.

Salary.com
www.salary.com
The Salary Wizard calculates salaries based on job title and location.

Relocation Central
http://relocationcentral.com
Choose a state and see information such as unemployment levels, top employers and per-capita incomes. Click on a listed city in that state and find lists of recruiters under Employment Services.

OTHER RESOURCES

WorkTest.com Inc.
www.worktest.com
This site contains profiles of locations, with links to local companies, newspapers, chambers of commerce and job listings. There are also company profiles, but much of the content seems to be supplied by the businesses themselves.

Careerjournal.com
www.careerjournal.com
Affiliated with The Wall Street Journal, this Career Journal provides a good source for regional news stories, [illegible] listings, [illegible] employment trends.

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MICHAEL MCNEIL, PURE CARBON

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Automated Screening: Guaranteed Success or Formula for Failure?

DR. WENDALL WILLIAMS, SCIENTIFIC SELECTION

Are you really measuring what you want? What does it take to do it right? Dr. Wendell Williams, Managing Director of Scientific Selection is a nationally recognized expert in testing and assessment for selection. He is a frequent contributor to online and print recruitment newsletters and professional publications.

Measuring Your Success: What Your Management Really Wants to Know

KEVIN WHEELER, GLOBAL LEARNING RESOURCES, INC.

The critical value of metrics is in the eye of the beholder. Do you know who your stakeholders are?

Kevin Wheeler, the President and Founder of Global Learning Resources, Inc., is a globally-known speaker, author, columnist, and consultant in human capital acquisition and development.

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KEN GAFFEY, STAFFING CONSULTANT

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Ken Gaffey is a staffing consultant with over 15 years of Human Resources experience in the New England high technology and financial services marketplace. Ken is an active member of IHRCA, NEHRA, SHRM, HRC, the Society of Professional Consultants, and the Human Resources Council. Ken contributes articles and book reviews to the Electronic Recruiting Exchange, Monster, HR Today, and several other professional organization newsletters and periodicals.

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PRESTON EDWARDS, IMDIVERSITY.COM

Top employers benchmark how diversity has become a core value to attracting and retaining top talent and keeping a competitive edge. Moderator, Preston Edwards, Chairman and CEO, IMDiversity.com, and Black Collegian Magazine, is nationally known for his 30 year commitment to diversity education. He has been honored by numerous organizations including the 1999 Pericles Award from the Employment Management Association.

What You Really Need to Know About Resume Management Systems or, How to Tell "Real Ware" from "Vaporware"

MARK MEHLER, MMC GROUP

The worlds most competitive competitors discuss the pros and cons of choosing and using emerging technology tools and systems. Moderator: Mark Mehler, President, MMC Group. Mark is an international consultant on high-volume staffing processes, a sought after speaker at national recruiting conferences and co-author of CareerXroads.

Town Hall Forum: Pundits, Puns and Pulled Punches

GERRY CRISPIN, CAREERXROADS 2000; JOHN SULLIVAN, AGILENT TECHNOLOGIES; KEVIN WHEELER, GLOBAL LEARNING RESOURCES; PETER WEDDLE, WEDDLE'S

Four internet recruiting pundits square off in a "no-holds" barred debate on the future of employment. Who are the winners and losers in the employment space?

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BRET HOLLANDER, NETRECRUITER

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Oracle RDBMS, Designer 2000, Developer 2000, Oracle RDBMS, Oracle Applications, SQL*Plus, Pro*C, PL/SQL, SQL*Forms, SQL *Reports.
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Mainframe: IBM/3090, IBM ES/900, MVS, IMS, CL/400, CICS, TSO, VSAM, COBOL, JCL, AS/400
PeopleSoft, SAP or Baan

Multiple openings for permanent IT technical and managerial positions involving voice/data communications technologies (including Programmer/Network/Phrase Development Analysts, Database/Software/Process/Network/Product Market and related Engineers, Project/Program Managers, Systems Administrators/Integrators, and related positions) from entry - to senior-level in Lanldover, MD; Holmdel/Basking Ridge/Murray Hill/Middletown/Somerset/Whippany, NJ; Alameda/Manteca/San Jose, CA; Westminster/Denver/Englewood, CO; Dallas/Houston, TX; Columbus, OH; Allentown, PA; Norcross, GA; Coral Gables/Maitland, FL; Redmond, WA and others to direct, design, develop, program and test business enterprise communications systems and technologies involving Fiber Optics, Switching Technologies, TCP/IP, Wireless, Data Warehousing, Business Metrics, E-commerce, Telephony, and others using Object Oriented Programming/Design, relational database modeling, distributed systems, and current web, voice, telecommunication and related technologies. Particular tools include one or more of: JAVA, C/C++, Visual#, ASP, ActiveX, UNIX, SQL, Windows NT, Lotus Notes, Perl, COBOL, 4GL, CICS, DB2, CORBA, HPVV, COM/DCOM, OLE, GDI, Internet protocols, and others. B.S. in Comp. Sc., Eng'ing, Math, or related area. Will accept combination of education, training and experience in lieu of degree or foreign degree for some positions. Prior experience and M.S. required for some positions. Competitive salary/bonus/benefits offered. Send resume to: Avaya, Inc., 100 Mount Airy Road, Room C258, Basking Ridge, NJ 07920. Attn: LV-550108 or submit resume on-line at http://jobs.avaya.com Please indicate reference number $501081 when responding to ad.

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Database Administrator (2 openings) to provide guidance to clients and technical/functional consultants throughout various stages of deployment of the Oracle database and applications. Will perform daily tasks such as user maintenance, resource allocation, security implementation, and performance tuning, perform periodic tasks such as software maintenance, backup (archival of data) and recovery, install and configure the Oracle Applications (Smart Client, NCA), create and upgrade databases, and size databases according to business requirements. Will assist clients with data backup, performance tuning, storage allocations and maintenance, capacity planning, user installations, software upgrades, application of patches, detailed database sizing, data archival and retrieval, and database administration training. Will provide technical expertise in the conversion of legacy data to Oracle Applications environment. Requirements: Bachelor's degree in CS, Math, Elec. Eng., or Comp. Eng. & 1 yr. experience in job offered OR 1 yr. experience in Database Administration. Position requires ability to travel on short notice 25% to 50% of the time to client sites throughout Dallas area, as well as to Sapient offices and client sites in the United States. Sal. $75,600/yr. Ba Sp. Apply at the Texas Workforce Commission, Dallas, Texas, or send resume to the Texas Workforce Commission, 1117 Trinity, Room 424T, Austin, Texas 78701 JO# TX1154234. Ad paid by an Equal Opportunity Employer.

POWERHOUSE PROGRAMMER/ANALYST

W/min. 2 yrs. PH exp. To design, prog. & test custom mods. to our SW app. Must have extensive exp. with PH QUICK, QUIZ and QTP. Ability to work w/min. sup. & interface closely w/customers. Bachelor's deg. in Comp. Sci. or equiv. work exp. Salary $66K. Send 2 copies of resume to: **Job Order #2001-107, PO Box 989, Concord, NH 03302-0989.**

POWERHOUSE PROGRAMMER/ANALYST

W/min. 2 yrs. PH exp. To design, prog. & test custom mods. to our SW app. Must have extensive exp. with PH QUICK, QUIZ and QTP. Ability to work w/min. sup. & interface closely w/customers. Bachelor's deg. in Comp. Sci. or equiv. work exp. Salary $72.5K. Send 2 copies of resume to: **Job Order #2001-113, PO Box 989, Concord, NH 03302-0989.**

SOFTWARE & DATABASE POSITIONS

BROOKS AUTOMATION, INC., a global public company engaged in the design, development, manufacture and sale of material handling robotic and other hardware and software systems to technology manufacturers, seeks to fill a number of Software Engineer and Database positions at various levels of responsibility at our location in Chelmsford, MA.

Most positions require a Bachelor's degree (or equivalent) (some require a Master's degree) together with at least 1 to 7+ years relevant industry experience.

Principal Engineer (Client-Server Mfg. Systems)
- (3-Tiered Client-Server Arch., OO Design / Dev., Semiconductor Mfg. Execution Systems)

Senior Software Engineer (Infrastructure)
- (Multibyte Character Set Support, Unicode, Messaging Systems)

Oracle Database Administrator (Data modeling)
- (CASE tools and AIX-UNIX)

Starting salaries from $50,200 - $107,900 commensurate with the position's specific responsibilities, together with contributory medical, full dental and disability insurances, and other industry competitive benefits.

Please mail or fax your resume, indicating Reference Code "MSP" to: Brooks Automation, Inc., ATTN: Ms. Susan Sacca, Human Resources, 15 Elizabeth Drive, Chelmsford, MA 01824, Fax: 978/262-2508. Visit our website at www.brooks.com. Brooks Automation is An Equal Opportunity Employer.

Database Administrator responsible for addressing database architecture and administration issues within the e-trading environment and assisting in setting technical direction for all future Sybase and Unix based applications. Duties will include providing production and development support of databases for a client/server application using Sybase Unix, Powerbuilder and C++ programming; and establishing procedures for quality assurance database upgrades and performance tuning. Master's degree in Computer Science or related field required as well as one year of experience as a Database Administrator or one year of experience as a Programmer Analyst and/or Computer Consultant or related field. Must have academic or professional experience in the following: development, testing and database administration support for a client/server application using Sybase Unix, Powerbuilder and C++ programming and executing database upgrades from a prior Sybase version to a subsequent version, and troubleshooting performance issues. 40 hours, 8:30am to 5:00pm, $65,360/year. Send 2 copies of both resume and cover letter to: ILLINOIS DEPARTMENT OF EMPLOYMENT SECURITY, 401 South State Street 7 North, Chicago, Illinois 60605, Attention: Arlene Thrower, Reference #V-IL 23980-T. No Calls. Applicants must show proof of legal authority to work in the U.S. Employer paid ad.

Structure Database Technologies, Inc. is seeking qualified individuals for the following positions in the Waltham, MA area:

Database Administrator: Will perform backup, recovery and tuning of Oracle or ADABAS databases as well as system configuration and disk storage management. Will create initial software installations, resolving database errors and failures, managing system access, auditing activities and resource utilization, and generating database objects using ADABAS in a mainframe environment; or Oracle 7.X, 8.X; or IMS in a mainframe, UNIX or NT environment.

Oracle Application Developer: Will use Oracle's PL/SQL and Designer/Developer 2000 Suite and Java to plan, develop, and implement client applications, and assisting in the preparation of project work plans, including the determination of the project time lines, resource requirements, critical design review points, and deliverables to the customer.

The successful candidate will possess strong technical and communications skills, be a team player, understand their role in the development of applications, and take responsibility for their own actions and work effort. Experience with other RDBMS Client/ server tools and the web a plus.

Microsoft Applications Developer: Responsible for the planning, development, and implementation of client applications, assisting in the preparation of project work plans, including the determination of the project time lines, resource requirements, critical design review points, and deliverables to the customer. The successful candidate will possess strong technical and communications skills, be a team player, understand their role in the development of applications, and take responsibility for their own actions and work effort. At least two years development experience with Visual Basic, Visual C++, Microsoft Exchange, SQL Server, and Internet related deployments is a must. Enterprise-wide application of the entire suite of Microsoft products is a definite plus.

Please send resume via email to r-structure.hr@r-structure.com, or by letter to Amy Ostrand, 13710 FNB Parkway, Suite 400, Omaha, NE 68154.

Terabeam Networks seeks Dir of Network Implementation at its hdqtrs in Seattle, WA. DESC: Plan, dir & coord. nat'l &int'l impl. of Terabeam Optical Wireless Networks (TOWNs) & strategic projects to dev & impl LAN and WAN solns to facilitate broadband wireless comm &exec. of bandwidth rich apps; Confer w/ proj personnel to prov. tech advice& resolve problems. Dir comm & info solns to the bus dev sales & eng teams as well as to clients. Ensure proj solns deployed are technically acceptable & accurately communicated to the installation, tech & network eng teams. Research, dev & impl effective strategies to target new and existing markets. REQ: B.S. in EE + 2 yrs exp. designing, developing and implementing LAN and WAN us broadband access technologies and middlewares, incl ATM, frame relay routing and internet protocols, impl bandwidth rich apps. Conducting market research, dev business plans & dsgn product & services presentations. Pram salaries + bonus & benes. Pls. reply to S. Feldman, Job # 100, 2300 Seventh Ave., Seattle, WA 98121.

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SOFTWARE SUPPORT FOR STRATEGY CONSULTING

Decision Architects, a Monitor Group Company providing customized software solutions in support of strategy consulting, has an immediate need to fill a range of software, database and IT positions in the Boston area.

The following positions all require a Bachelor's degree (or equivalent) in Computer Science, MIS, Business Administration, or similarly relevant field and 2-8 years' relevant experience to include the requirements described below:

PROGRAMMER - ANALYST and DATA BASE DESIGN ANALYST POSITIONS

- **Application Development Analyst (Business Systems)** with experience building software-based business analysis models, and a functional understanding of accounting.
- **Data Base Design / Application Consultant** with experience in software development, data base administration, performance-tuning, Oracle Lite and Express, and a functional understanding of financial accounting.

Starting salaries range from $58,500 to $77,500 per year, together with two weeks' paid vacation, medical, dental, life and disability insurances, and other industry-competitive benefits.

Please mail or fax resume to: Ms. Ashley Kiersten, Recruitment Manager, Decision Architects, 2 Canal Park, Cambridge, MA 02141, Fax: (617) 761-3677, Email: Hire_Me@decisionarc.com

Visit: www.decisionarc.com

Decision Architects, a Monitor Group Company, is an equal opportunity employer.

Database Administrator - Performing system analysis, design, implementation and integration of INGRES systems; INGRES System/Database maintenance; VMS/UNIX programming used to support and produce software solutions; Providing technical support to application developers; Coding in INGRES windows 4GL. M-F, 40 hrs; Overtime as needed; $-S. $62,400/yr. Requirements - 4 years experience as Database Administrator, Analyst or Programmer and two months training in INGRES Systems. Special requirements - Four year's work experience with the following: (1) Performing system analysis, design, implementation and integration of INGRES Systems; (2)INGRES system/ database maintenance; (3) Providing technical support to application developers; (4)Coding in INGRES windows 4GL. Applicants must show proof of legal authority to work in the U.S. Send 2 copies of both cover letter and resumes to: Illinois Department of Employment Security, 401 South State Street, 7 North, Chicago, Illinois 60605. Attention: Sheila Lindsey. Reference # V-IL 23575-T. An employer paid ad. No calls.

Software Engineer (Phoenix, AZ & Bay Area, CA openings): Design, analyze, develop, test, implement and maintain client/server projects on UNIX, WINDOWS, intranet/Internet platforms using RDBMS/OOAD. Design & analyze Database using Oracle Designer. Server side development using SQL *Plus, PL/SQL, Java, C, C++ and Pro*C. SQL scripts. Front-end development using Oracle Developer Java, JFC, Javascript and HTML. Testing with MS-Test/SQA Team Test. Also maintain database & Web Servers. Req. MS in CS or other related Engineering field plus 1 yr exp. in job described. Resume to HR manager, SoftTech, Inc., 8025 The Corners Pkwy, Suite 204, Norcross, GA 30092.

Data Warehouse Architect (multiple openings): Working independently, develop data warehouse data models to store manage and analyze and report data from operational systems. Conduct data analysis and integration activities. Direct and approve data transformation rules and centers with client on their needs. Coordinate the use of multiple data warehouse and data mart models to store source system data. Positions require BS in CS, Engineering, or foreign equivalent, or related field and 5 years as a Data Warehouse Architect or 5 years of business system data model development experience. Experience must include 1) data integration analysis, 2) data modeling, 3) data architecture development, and 4) Computer Aided Systems Engineering (CASE) tools. $65,000 per year. Job site: Denver, CO. Application is by resume only. Send resume to Colorado Department of Labor and Employment, Employment Programs, ATTN: Jim Shumada, Two Park Central, Suite 400, 1515 Arapahoe Street, Denver, CO 80202-2117, and refer to order number CO 4684926.

SAGA SOFTWARE, Inc. is a world class software company delivering enterprise-class software products and services. We help our team of top professionals and help as set our business free.

We are recruiting for all types of Systems Analysts Consultants, Staff Consultants, Project Managers/Leaders, System/Software Engineers, Programmer/Analysts, and other computer science professionals.

Openings throughout the U.S including Reston VA, Atlanta, Chicago, Dallas/ Philadelphia, Sacramento and Irvine, CA, Denver, Fort Lee, NJ, Rochester, NY, Bloomington, MN.

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Fax: (703) 391-6340. For additional opportunities, see our ads under Computer or visit our Web site: www.sagasoftware.com

SAGA

Mitel is a world leader in the design, manufacturing, and marketing of messaging products, switches, semiconductors, call-center systems, and systems for the communications industries. We offer you an open line to success.

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Network Administrators
Engineers
Engineering Lab Managers
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INFORMATION TECHNOLOGY CAREERS:

The U.S. Department of State is the lead foreign affairs agency formulating and implementing the President's foreign policy and representing United States interests throughout the world. The Department carries out this mission at over 185 embassies and consulates around the world, offices in the metropolitan Washington, D.C. area and other locations in the United States. The ability to adapt to changing physical environments, work with differing levels of technology and keep abreast of the latest developments and innovations in the IT field are characteristic of Department of State Foreign Service Information Management Specialists and Information Management Technical Specialists. The U.S. Department of State is a unique Federal agency offering both **Recruitment Bonuses** and **Retention Incentives** for critical I T skills.

Position Title: FOREIGN SERVICE INFORMATION MANAGEMENT TECHNICAL SPECIALIST (LAN/WAN NETS - TELEPHONE AND RADIO)

Salary Range: $34,575- $50,462

Benefits: Tax-free overseas housing; tax free educational allowance, attractive health care and retirement package, etc.

Position Description: Foreign Service Information Management Technical Specialists (IMTS) are responsible for installing, repairing and maintaining a wide range of local and wide area networking, radio and telephone equipment. IMTS duties include:

- Design, install and maintain various telecommunications, radio, telephone and computer systems;
- Design, install and maintain client/server-based local and wide area networks;
- Provide regional field support and technical assistance to overseas missions;
- Perform technical site surveys to determine technical requirements;
- Conduct fault isolation and technical control of voice frequency leased lines and digital/radio network components.

Position Title: FOREIGN SERVICE INFORMATION MANAGEMENT SPECIALIST

Salary Range: $30,909- $50,462

Benefits: Tax-free overseas housing; tax free educational allowance, attractive health care and retirement package, etc.

Position Description: Foreign Service Information Management Specialists are responsible for all worldwide and domestic information resource management programs and information technology. The work is diverse and challenging. IM employees support a vast spectrum of computer technology, ranging from state-of-the-art systems to the older legacy systems. They are responsible for:

- Installing, maintaining and operating PC local and wide area networks;
- Operating telecommunications and cryptographic equipment;
- Assembling, dispatching, receiving and distributing diplomatic pouches;
- Installing and maintaining telephone systems;
- Maintaining radio and cell phone programs; and
- Performing other duties such as supporting visits of high-level officials, including the President.

Applicants must be American citizens who are at least 20 years old.
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For additional Foreign Service job information, visit us at www.state.gov/www/careers
or call (202) 261-8899 or e-mail Aberrj@state.gov

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INFORMATION TECHNOLOGY OPPORTUNITIES

The Gillette Company is the world leader in more than a dozen consumer product categories. Global World Class operations are increasingly dependent on Information Technology. Exciting opportunities exist in global business process integration initiatives. We are currently seeking the following highly qualified professionals to join the Gillette IT team in the Boston area.

The following positions (unless otherwise noted) all require a Bachelor's degree (or equivalent) in Computer Science, MIS, Business Admin. or similarly relevant field, and 3-6 years relevant experience to include the requirements described below.

- **Senior Staff Programmer Analyst** with 5 years business systems programming experience, 3 years of which involved SAP ABAP development, with design and OA expertise, and SQL/relational databases. [Job Code #: IMSP-DL-1CP]
- **(SAP) Staff Basis Administrator** with 3 years IT experience defining requirements and maintaining SAP Basis infrastructure, with SAP remote printing, HP-UX, and EMC hardware/software [Job Code #: IMSP-DL-1000SCP]
- **Senior Telecommunications Analyst** with Associate's degree, 3 years experience in design and implementation of multi-carrier global networks using Cisco hardware and software [Job Code #: IMSP-DR]

Starting salaries range from $53,700 to $68,400 per year, together with paid vacation, medical, dental, life and disability insurances, and other industry-competitive benefits.

Please mail / email resume to The Gillette Company, Prudential Tower Building, Human Resources (Mailstop JM-IMSP), Boston, MA 02199 Email: JM_IMSP@Gillette.Com

The Gillette Company is an equal employment opportunity em-

SYSTEMS, SOLUTIONS & SERVICES CONSULTING INC. is a professional software consulting company providing a range of Consulting Services in E-Commerce, ERP, EAI, & C/S technologies. We have **immediate, full-time** openings for the following positions: Programmer/ Analyst, DBAs, Systems Analyst, PL and Software Engineers with minimum 1yr.experience in any of the following skills:

1) Weblogic/e Commerce, BroadVision, SilverStream,
2) E-commerce Architect
3) Active Software, MQ Series
4) Unix, C, C++, Java, HTML, Active X, Windows NT Server
5) Oracle Apps: Mfg – Purchase, BOM, WIP, Costing, Inventory, and OE
6) Oracle Financial – AR, AP, GL, FA,
7) Oracle HRMS – Payroll, OTA
8) Oracle Apps DBA
9) DB2, CICS, COBOL
10) AS/400, RPG/400
11) VB, SQL Server, Power Builder
12) SAP: Functional/Technical, ABAP/4, PP/DS, SD/MM, MM/PP, and HR
13) BaaN, BaaN 4GL, Syst Admin, SQL, EDI, BOI, Aurum
- BaaN Mfg – BOM, Process Mfg., PDM, Project Control
- BaaN Finance – AR, AP, GL, CM, FA
- BaaN Distribution – Inventory, Sales, Purchase, BaaN SCS

Positions are also available for Software Marketing Engr., Professional Recruiter, Director Sales, Marketing Manager, Project Managers, and Controller.

Bachelors or Masters degree req'd. In accordance with positions. We will also accept the foreign equivalent of the education and/or its equiv. in education and exp. Send, fax or e-mail your resume to Attn: Kimberly Mena, 535 E Diehl Rd., Suite 333, Naperville, IL 60563 Fax 630-548-4580, e-mail: kimberm@sscinc.com www.SSC.com EOE

Senior Software Engineer and Software Engineer positions available to design, develop and implement software systems to determine feasibility of design and to direct software testing procedures, programming and documentation. Candidates must have one year of experience in job offered or as a computer professional. Some positions require additional year of experience in a particular skills set (see below). Bachelors or Masters degree, or foreign equivalent, is required in one of several limited fields. Computer Science/Appl. Engineering, Chemistry, Math, Physics, or scientific or business related field. In lieu of Masters degree, Bachelors degree, or foreign equivalent, with five years of progressive experience will be accepted. Work involves extensive travel and frequent relocation. Salary ranges from $70,000 to $120,000 per/yr depending on skill set and experience. 40 hrs/wk., 8:30-5:00 p.m. Please submit resumes to: Respondyn, Jaime Lopez, 4400 Campbells Run Road, Pittsburgh, PA 15205.

RDBMS: Informix, Oracle, FoxPro, Sybase, SQL Server, Progress; Oracle RDBMS, Designer 2000, Developer 2000, Oracle RDBMS, SQL*Plus, Pro*C, PL/SQL, SQL*Forms, SQL*Reports, SQL*Loader, Oracle Forms, Oracle Reports, SQL*Menu, SQL*DBA, SQL*Net, GUI: Windows 95/98/00, Windows NT, Visual C, Visual C++, C, C++, Visual Basic, PowerBuilder, MFC, Crystal Reports, COM/DCOM, CORBA, Mainframe: IBM3090, IBM ES9000, MVS, IMS, CL/400, CICS, FSO, VSAM, COBOL, JCL, AS/400, DB2, WAX/VMS, MVS;

ERP: PeopleSoft, SAP, Baan or Oracle Applications/Financials/ Manufacturing/HR;

Internet Applications: ASP, HTML, Java Script, Java, ColdFusion, BroadVision, ATG Dynamo, Netdynamics, Websphere, Java Beans, Front page, OGI, Pearl, MTS, IIS, CRM: Siebel, Clarify, Oracle CRM, SAP CRM;

DBA: Oracle, Sybase, informix, SQL Server, Unix/NT Administrators: Sun Solaris, IBM RS/6000, DG-Digital, SCO Unix, Windows NT Administrators, HP-9000, HP UX, IBM AIX, IRIX

SAP Systems Analyst. Responsible for development of SAP programs and reports for the implementation of SAP financial systems for assigned client including major upgrades and conversion of existing systems, as well as design of interfaces between U.S. and international corporate operational and financial systems. Evaluate client business operations and problem definition in order to apply SAP software and associated products to devise appropriate computer solutions. Will perform duties as lead consultant for assigned project after presentation and approval of system design proposal by client. Will then supervise creation of SAP technical configuration and programming requirements. Assist with implementation of new SAP system including troubleshooting, training and preparation of operational instruction manual for new system. 40 hrs/wk. Bachelor's in Computer Science, Engineering or Economics + 1 yr. exp. in job offered or 1 yr related exp. as SAP Analyst. Relocation may be required for longer assignments. Travel required up to 100% of the time to client sites throughout the U.S. $80,000/year. Apply at the Texas Workforce Commission, HOUSTON, Texas, or send resume to the Texas Workforce Commission, 1117 Trinity, Room 4241, Austin, Texas 78701 JO #TX1154223 Ad Paid by An Equal Opportunity Employer

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Technical Lead/Software Engineer (multiple openings) Working independently manage a team of highly skilled professionals in software quality assurance technical software publications, and configuration management groups. Oversee the design, analysis and development of software and database products. Responsible for customer relationships during beta releases of products. Resolve errors, suggest and implement solutions. Substantial amount of work done on the Windows/NT platform. Positions require Masters in Computer Information Science or foreign equivalent or related field. Educational or experience background must include 1) object oriented technology 2) JAVA 3) C++, 4) web development and 5)UNIX. $ 84 000 per year Job site Denver, CO Application is by resume only. Send resume to Colorado Department of Labor and Employment Employment Programs. ATTN Jim Shemaka Two Park Central, Suite 400 1515 Arapahoe Street, Denver CO 80202-2117 and refer to order number CO 4684927

EDP Administrator

Maintain, upgrade and troubleshoot Prophet 21 system in AIX. Maintain upgrade and troubleshoot e-mail server using Domino Server on Windows NT server. Support Japanese and English workstations on LAN. Maintain, upgrade and troubleshoot ADP software using SQL Server. Prepare instructions and train end-users on system and applications. Support end-users on Act contact database, implement, maintain upgrade and troubleshoot a web server. Must have ability to speak, read and write in Japanese language. Requires a Bachelor's Degree in Management Information Systems. 40 basic hours per week, overtime may vary. $43,420 per year. Must have proof of legal authority to work permanently in the U.S. Send resumes with Social Security Number to Indiana Department of Workforce Development 10 N Senate Ave. Indianapolis, IN 46204 2277 Attention DPG ID #8058898

SYSTEMS ENGINEER to design, develop, test, implement, integrate and maintain client/server systems using ZenWorks, Betaversion, Group-Wise Border Manager Backup pExec/Arserve/IT Exchange JetAdmin, JetDirect and Right Fax under Windows NT, Novell, Netware and Unux operating systems. Work with PDCs, BDCs, DHCP, TCP/IP WINS & RAS server setup and configuration. Perform LAN administration. Require Bachelor's degree (or equivalent) in Computer Science, or a closely related field, with 1 year of experience in the job offered. Each additional three years of work experience in the industry/related field will be considered equivalent to and year of college/university education toward a Bachelor's degree in Computer Science. Salary $70,000 per year. 8:00 am to 5:00 pm M-F Apply by resume to Thomas Della Torre, President, TNT Technologies Inc. 1028 Peachtree Parkway N. 4279 Peachtree City, GA 30269/ Attn: Job LD

SOFTWARE ENGINEER to design, develop, implement and integrate large scale n-tier application software using Object-oriented programming languages, C++, Java, UML, XML, HTML, SQL and Oracle on UNIX, Solaris and Windows NT platforms. Design and develop network management system (NMS) using SNMP protocol. Require M.S. degree in Computer Science, an Engineering discipline, or a closely related field with two years of experience in the job offered. Extensive travel on assignments to various client sites within the U.S. is required. Salary $64,800 per year 8:00 am to 5:00 pm, M-F Apply by resume to Venkat Raman, President, CVR Consulting Company, 3401 Custer Road Suite 124, Plano, TX 75023, Attn: Job SU

PROGRAMMER ANALYST Design, implement and manage streamlined online/in-house Order Entry System using Matrix-One E-Commerce package in Windows NT/Novell-based network environment. Create new GUI application to interface with CA-IDMS Mainframe and ORACLE database. Design and develop Internet/Internet for division-wide business needs in a centralized client/server environment. Analyze and develop business software applications for sales/marketing in MS Windows NT/Novell-based network environment. Provide complete training for new applications. Degree in Computer Science or related field required. Send resumes to William A. Rodell, Manager Industrial Relations, Dresser Equipment Group Inc. 750 East Main Street Stratford, Connecticut 06614-5145 AD placed by an Equal Opportunity Employer

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Database Administrators Plan create physical devices, volume groups, logical mount points, installation administration of database instances for development & production on HP 9000 and IBM RS6000 machines. Plan & install Oracle 8.05 & 8.1.5 software & created production & development databases in compliance to OFA structure. Monitor & tune existing production & development databases. Perform DBA tasks such as monitoring backups, applying patches, exporting & importing data between instances, creating database links, creating users, maintaining rollback segments, adding table spaces and data files. B.S. or foreign eq. in comp science, ml syst. eng. or closely related discipline & 2 yrs exp req'd. Must have knowledge of Oracle DB, UNIX OS & Windows NT $65 000+ yr DOE Job may be anywhere in the U.S. Submit resume referencing job # 5032726 to Philadelphia Job Bank, 444 N 3rd St - 3rd Fl., Philadelphia, PA 19123

Software Engineer (multiple openings) Under close supervision, assist in specification, design, and implementation of computer software components. Assist in programming and debugging software. Assist in architecture development for portable system interfaces, and conduct performance analysis. Participate in developing new features according to market needs and resolve technical issues. Positions require BS in CS, Engineering or foreign equivalent, or related field. Education or experience background must include 1) JAVA, 2) UNIX, 3) Windows/NT, 4) software production, and 5) source and configuration management. $65 000 per year. Job site Denver, CO. Application is by resume only. Send resumes to Colorado Department of Labor and Employment, Employment Programs, ATTN: Jim Shemaka, Two Park Central Suite 400, 1515 Arapahoe Street, Denver CO 80202-2117 and refer to order number CO 4684926.

Intelligence formerly Schmidt Vogel Consulting, a Global SAP Consulting firm is looking for Consultants with SAP modules, ABAP or Basis exp., for all of our office locations: Atlanta, Chicago, Cincinnati, Cleveland, Dallas, Houston, Minneapolis, and Parsippany. Other available positions are: Senior Level Consulting, Proj Man, Consulting Mgrs, and Sales positions, also in all of our locations. Intelligence offers competitive salaries, 401(k), health benefits, starting three weeks vacation, 12 paid holidays, and many more opportunities. Please submit resume to our website www.intelligence-group.com under Careers in Motion or fax 513-956-2007 attn. Duane Smith / H.R. Mgr. E.E.O.

DBA Nashua, NH. analyze, design, dvlp, implmt & maintain client-server applics in Oracle SQL, Oracle PL/SQL, VB, analyze, design, dvlp & implmt rel & multidimens databases in Oracle Designer 2000, Oracle DB Server; automate data proc using KornShell, JCL, VB Script, Oracle SQL*Loader; research, deliver & enhance internally dvlpd softw applics & resolve probs using related tech; define & determine bus & sys requmts; review, repair, test & modify softw programs to ensure tech accuracy; use Windows 95/98/NT, UNIX, MVS. Qualifs. MS in Elec Eng/Comp Sci + one yr exper. Must have Oracle Cert. 40 hrs/wk. 9-5. $80,000 per yr. Send two copies of resume of applic to Job Order # 2001-075, P.O.Box 989, Concord, NH 03302-0989

PROGRAMMER/ANALYST to analyze design, develop, test, implement and maintain application software in a client/server environment using Oracle, Developer 2000, C, Pro*C, Visual Basic, HTML, RDBMS, Lotus Notes, Domino, Java and Java Script under UNIX and Windows NT operating systems. Require: B.S. degree in Computer Science or Engineering discipline, or a closely related field with 2 years experience in the job offered or as a Programmer Analyst. Salary $65,000 per year. 9:00 am to 5:00 pm, M-F. Apply by resume to: Pishu Hanjan, President, Focus Software, Inc., 22 Perimeter Center East, Suite 2205, Atlanta, GA 30346; Attn: Job PT

DBA Nashua, NH design, customize, install & configure Oracle databases, manage & admin databases; design various network & sys using Win 2000 Active Directory environt, conduct backup & recovery, perf tuning & data modeling; Oracle database admin & config; time synchronization via internet (NTP, SNTP); using remote access tech design, remote database monitoring & connection for admin; use Win NT/2000, Novell Netware, Sun Solaris, HP-UX, TCP/IP, Linux Lan-to-Lan VPN connections w/ routing, Oracle Intelligent Agents + Netfi config. Qualifs. MS in Elec Eng/Comp Sci, plus one yr exper. Must have MCSE & MCNE. 40 hrs/wk, 9-5. $78,000 per yr. Send two copies of res/brs, of applic. to Job Order # 2001-109, P.O.Box 989, Concord, NH 03302-0989

E-BUSINESS ARCHITECTS & Software Developers/Analysts. DigitalESP provides a full range of e-business services to companies, including e-business strategy, e-business and enterprise architecture design. We seek e-business Architects and e-business Software Developers/Analysts to develop B2B e-business solutions for our clients. We seek candidates with expertise in developing secure transactional systems including integration of divergent open standards and protocols into an integrated digital supply chain. Positions available in San Francisco, CA and New York, NY and at our headquarters in Raleigh, NC. E-mail credentials to Nancy Hill nancyh@digitalesp.com or fax to (919) 676-6985

Software Engineer to design and develop Enterprise Systems and Database Applications for POS industry using software engineering techniques and object oriented design. At least 18 months exp. in VB, XML, Java, POS, VBScript, COM, ASP, SQL Server & 3 yrs. exp. in C++ is req'd. Mentor for junior level developers. M.S. or equivalent in Computer Sc. Travel req'd. Submit resume and salary req'mnts to Director HR, Gompers Technologies Inc., 1000 Cobb Place Blvd. Kennesaw, GA 30144

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Consultant Design, develop, implement & test software applications using client/server technology & object-oriented methodology. Database & system administration. Tools: Visual C++, SQL Server Windows NT MS* on Comp Sc. or Comp Eng. + 1 yr exp in job offered or as System Analyst req'd. (*BS in Comp. Sc. or Comp Eng. + 5 yrs exp. in software development acceptable in lieu of MS.) Previous exp must include: Visual C++, Windows NT 40 hrs/wk., 8am-5pm. $64,480/yr. Applicants must show proof of legal authority to work in the U.S. Send 2 copies of resume & cover letter to Illinois Dept. of Employment Security, 401 S. State St.-7 North, Chicago, IL 60605. Attn: Sheila Lindsey Refer V-IL 24382-L. Employer Paid Ad. No calls.

Database Administrator - Engineering, maintain Progress & Oracle databases, including monitoring, operations & capacity plan upgrades, performance tuning, development & quality assurance of database code. Required: Bachelor of Science or foreign degree equivalent in Computer Sc., Eng or Math, with 3 yrs work exp. for internet service provider or 3 yrs as UNIX operating system administrator. Prior work must include 2 yrs experience with Progress or Oracle databases, Cisco routers, TCP/IP and UNIX operating system using Solaris and Linux. Respond to Laurie Gardner, EarthLink, Inc., 1430 W. Peachtree Street, NW #400, Atlanta, GA 30309

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Max Commerce, Inc. has immediate opening for an exp'd Internet Developer/ Designer skilled in JavaScript, VBScript, ASP, PERL/CGI & relational database (SQL server, Access). Graphics skills is a plus. Please send resume & salary expectation to HR, 1005 Alderman Dr., Suite 102, Alpharetta, GA 30005

Software Engineer (Atlanta, GA) Architect design develop document and maintain the statistical analysis component of the company's flagship software product in C/C++/Java applying laws of mathematics & statistics. Also conduct research and implement efficient and practical algorithms for the component. Must demonstrate ability to perform the job through at least 1 yr exp in job offered or in software development. Req. M.S. in C.S., Mathematics, Statistics, or other related field. resume to HR Manager, Zvolve Systems, Inc. 1050 Crown Pointe Pkwy., Ste 300, Atlanta, GA 30338.

Software Engineer
(2 positions)

35 hrs/wk; 9am-5pm; job is located in Jacksonville, FL $45,031/yr. MS in field of Comptsc, Compleng or EE & 2 yrs exp in job offered or 2 yrs related exp as programmer/analyst or as related position OR, Bach degree in same subject areas + 5 yrs of rel'd exp. Must have exp. w/: DB2, CICS, COBOL II, VSAM (MVS/XA) utilities up to/incl. Design & develop software applications for int'l institutions using COBOL II, DB2, CICS & VSAM under MVS op system. Send resume to: **Workforce Programs Support/A.L.C. Unit, P.O. Box 10049, Tallahassee, FL 32302-0049; JOB#: 2141349.**

IT Instructor

Prepare outline of instructional program and assemble materials to be presented; present lectures and conduct demonstrations of computer network using Windows NT, Windows for Work groups, Windows 98 and Novell working with TCP/IP. Use of UNIX, MS SQL and Cisco routers preferred. B.S. in Comp. Sc. or Comp. Eng. Send resume to: HR Dept. PC AGE 1259 Rte 46 East, Bldg 4C, Parsippany, NJ 07054

Business Programmer/Analyst. Develop, implement & test software for business applications. Troubleshooting for staff & clients. Tools: C++, Visual C++, MS-Access. BS in Comp. Sci. + 2 yrs exp in job offered or as Programmer req'd. Previous exp must include: C++, MS-Access. 40 hrs/wk., 8:30am-5:00pm, $52,250/yr. Applicants must show proof of legal authority to work in the U.S. Send 2 copies of resume & cover letter to Illinois Dept of Employment Security, 401 S. State St.-7 North, Chicago, IL 60605. Attn: Juanne Breaux. Refer V-IL 24136-N. Employer Paid Ad. No calls.

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SOFTWARE ENGINEER 9:00 am - 5:00pm 5 days wk $65,000/yr, located in Hialeah, FL. Must have Bachelors in Electrical Engineering and 3 years exp as a Software Engineer

Research, Design, and Develop software and hardware systems utilizing UNIX, C Java, Windows NT, and HTML. Analyze software requirements, determine feasibility of design, consult with hardware and software subcontractors, responsible for the performance of our overall system. Submit Resume to: Agency for Workforce Innovation, Workforce Program Support P.O. Box 10869 Tallahassee FL 32302-0869 ATTN: L.Knight, RE: JOFL #2134730

SAP Specialist – Manufacturing. As a key member of the MIS department's SAP Manufacturing Team, the SAP Specialist will provide direct support to the manufacturing operation as an internal consultant in SAP PP module design, configuration, testing, implementation, troubleshooting, system/process enhancements, system design and analysis of customer projects, project coordination and personal training. In addition the Specialist will be the primary interface with ABAP programmers in the design and development of all manufacturing programming efforts. Requires a bachelors degree in Computer Science, Engineering or equivalent field, with SAP Certification as R/3 Applications Consultant. Please send resume to Ms. Melissa Seymour, Human Resources, United States Surgical Corporation, 150 Glover Avenue, Norwalk, CT 06850

1. Openings for Programmer/Analyst, Computer Support Specialist, or Database Administrator. Design, develop and test computer programs using Java, C++, UNIX, Oracle, SQL Server Min. BS in Comp. Sci. (or equiv.) and 1 yr exp.

2. Openings for Programmer/Analyst, Computer Support Specialist, or Database Administrator. Analysis, design, and development of computer programs using Java, C++, UNIX, Oracle, SQL Server Min. MS in Comp. Sci (or equiv.) or BS in Comp. Science (or equiv.) and 5 yr exp. Resume: HR Dept. Information and Technology Management, 900C Oak Tree Rd. South Plainfield, NJ 07080

Software Engineer (multiple openings): Design, develop & implement computer software systems for ORACLE on IBM AIX platform, analyze client software requirements to determine feasibility of design within time & cost constraints for ORACLE applications; design interfaces between hardware & software, and operational & performance requirements of overall client computer systems. Req.: 5 yrs in job offered or 5 yrs in related occupation as Database Administrator, Computer Programmer or suitable combo of edu. training and/or exp. Hrs: 8a-5p, M-F. Send resume to Experet of Atlanta, 3355 Shiloh Rd East, Ste 208, Alpharetta, GA 30005 Ref#NN

Computer Data Base Administrator wanted by Intl. test organization in Newtown, CT Req'd: Bachelor or Equiv. in Engineering, Comp Sc and 2 yrs. of comp exp. incl Novell, Lotus Notes and SAP. Fax resume to HR Department, TUV Rheinland, Fax # (203) 426-3305

Software Developer $36,000/Yr. Overall job duties are: design, develop, test, document and implement computer software programs for business and technical applications. Specific duties include: design development and maintenance of Softquiz Com, an Internet Portal for skill level testing of prospective employees in the IT field; perform programming/coding for Softquiz Com on linux environment utilizing Java Servlets, JSP, Swing, Applets, HTML, Javascript, JDBC; Oracle maintain documentation of code development and revisions; monitor Portal performance review & modify code for improving efficiency of Portal; prepare user manual and provide technical assistance/support to and users of Portal. Requires a BS in Computer Science and Certification in JAVA Programming. Send resume to HR, Open Systems, 6465 E. Johns Crossing, Ste 400, Duluth, GA 30097 with proof of legal authority to work permanently in the US.

Sr. Systems Administrator. Monitor sys capacity & tuning; recommend h/w & s/w upgrades &/or additions; provide operational & maintenance support for LAN & server environments by assessing, evaluating, & recommending appropriate server tech; provide jr staff guidance in executing sys admin resp. for overall sys security; set up & maintain all server h/w & s/w; admin Open VMS, Unix, NT, Pathworks, & e-mail & handle trouble shooting for h/w, s/w, network, & Internet issues. Req. BS, CompSci, InfoSci, or related, & 5 yrs exp supporting networked server environment & w/4 of the following in a sys admin capacity: Novell Network, DEC (Compaq) Open VMS, DCL, HP-Unix, Windows NT, TCP/IP, DECnet, LAT Pathworks, & Netscape server communic. guidelines & 2 yrs exp in sys admin coordination of major sys upgrades. Send resume to Dan Rogers, HR Manager, PPD Development, 3900 Paramount Pkwy, Morrisville, NC 27560, or call (919)462-4310.

Programmer/Analyst (Multiple Positions) wanted by investment banking firm in Greenwich, CT to analyze, design, develop, code, test, implement, enhance and maintain financial systems applications, including proprietary data systems, utilizing Windows NT, C/C++, UNIX, Shell, Perl and Java scripts and Sybase in a client/server environment. Responsible for analyzing and implementing user requirements utilizing knowledge of complex financial derivative and fixed income instruments, including options, FX forwards and swaps. Provide high-quality production support, including development of sophisticated queries and stored procedures. Must have a Bachelor's degree in Computer Science or Electrical Engineering and two years of experience in the job. Employer will accept four years of experience in the job in lieu of a Bachelor's degree and two years of experience. Respond to Dave MacWilliams, Greenwich Capital Markets, Inc., 600 Steamboat Road, Greenwich, CT 06830.

SENIOR SOFTWARE ENGINEER to provide on site consultancy for the compass business software system life cycle design and development from conception to implementation including analysis, testing, system security, documentation, user support and system enhancement; analyze user requirements for hi- and lo- level design specifications; skills used include Visual Basic, COBOL, CICS, Oracle, DB2, MVS/ESA, OS2, UNIX and Windows on mainframes. Require Masters in Computer Science/Electronics Engineering and three years experience. Salary: $72,800 per year, 9 am to 5 pm, M-F. Apply with resume to: Business Manager, Royal Offering, Inc., 6491 Hospital Drive, Suite 330, Douglasville, GA 30134

PDM implementation Consultant to work under the close supervision and continued monitoring of the Group Leader will perform technical and consulting activities including system design and implementation. Will assist in facilitating customers implementation activities in the area of foundation building, customer education and education planning, and project planning and execution. Will execute product implementation tasks, project level implementation strategies, and participate in program activities (C-FIT PriCAP and others). Will also aid in user learning curve compression, mentor implementation associations and document methodologies and case studies. Requires a Bachelor's Degree in Computer Science, Electrical Engineering, Mechanical Engineering, Physics, Mathematics, or a closely related field and one (1) year experience in job offered or one (1) year experience in CAD/CAM or PDM consulting OR CAD/CAM or PDM development. Candidate must also possess expertise supporting Product Data Management (PDM) products. Salary: $60,100/yr M-F 8:00-5:00. Submit Two (2) copies of resume to Case Number 20009853, Labor Exchange Office, 19 Stanford Street, 1st Floor Boston, MA 02114 EOE. Applicants must be U.S. workers eligible to accept employment in the United States on a full time basis.

UNIX SYSTEMS ADMINISTRATOR to provide computer consultancy to develop complex project life cycle including user specifications and high and low level design, develop, enhance, maintain and set up client/server systems on multiple UNIX/networked platforms such as IBM RS/6000, HP-UX/PC/NT using graphical user interface, interface architect. AIX Admin, BOSS, computerized trunk and telephone, Sendmail, CTMX, UNIX shell scripts, C interfacing with Oracle, Sybase, Informix databases and SCO-UNIX, Uniqus TCP/IP, UUCP, SMTP, Novell Netware, CNA, CNE, graphical analysis using HP Perview, maintain data access layer and user interface layer for communication between UNIX servers to databases. Require M.S. (or equivalent) in Computer Science or Electronics and Communication and two years experience in the job offered (B.S. and five years experience may be substituted for M.S. degree). 50% travel to customer locations within the United States required. Salary $64,000 per year, 9 am to 5 pm, 40 hours per week, M-F. Apply in person or send two resumes to Georgia Department of Labor, Gwinnett, Job Order # GA 6944596, 1535 Atkinson Road, Lawrenceville, GA 30043-5601 or the nearest Department of Labor Field Service Office.

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- VC++/COM/DCOM/MFC
- Unix/C++/Pro*C/Pro*C++/STL/XML
- Oracle 8i/8.0/7.3x, Developer 2000, Designer 2000, PL/SQL
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Please mail or fax your resume with salary requirements to HR, 1 Dunwoody Park, Suite #230, Atlanta, GA 30338 FAX: 678-443-0730. EOE

Technical Liaison. 40 hours per week, 9:00a m -5:00p m, $78,500 per year, located in Ft Lauderdale, FL. requires a High School education and three years experience in the job offered. Must be fluent in Spanish. Develop software oversee application system enhancements, and maintain systems on IBM mainframes which support Latin American businesses. Manage strategy development to meet evolving business requirements, propose and implement technological solutions, and design benchmarks, analytical tools and work processes. Provide overall leadership in projects related to the integration of new and existing systems, including the implementation of a banking software system for Venezuela. Perform computer programming in languages including Fortran, Assembler, COBOL, CICS and Basic. Manage budget and provide status report to senior management. Provide technical support to local users and business groups in the Latin American marketplace. Oversee the activities and evaluation of Programmer/Analysts, and managed consultants. Send resume to: Dept Of Labor/Workforce Program Support PO Box 10869 Tallahassee, FL 32302 Attn: L. Knight, Re: JOFL #2130193

SOFTWARE ENGINEER

Works on request for software support reports, simple game changes, and modifications. Assists in the design of software modules with clearly defined requirements with the help of more senior software engineers. Participates in the design of test cases for software module changes. Participates in group design discussions and expected to understand basic design decisions. Duties limited to changes to or the creation of isolated modules or product components that are completely designed with some supervision from more senior software engineers. Requires only minor supervision from more senior software engineers to troubleshoot problems and make repairs on isolated modules or product components. Requires only minor supervision while bringing up the game, performing test cases and systems interrupt. REQUIREMENTS: B.S. in Computer Science Engineering, or related field plus one year or experience in job offered or related occupation of Programmer and/or Research. HOURS: 40+/wk. RATE OF PAY: $52,000/yr. SEND RESUME TO: Diane Alexander, Design Human Resources, GTECH Corporation, 55 Technology Way, West Greenwich, RI 02817. EOE

Software Engineer 40 hrs/week, 8am-5pm, $70,000/yr. Design and construct mainframe software applications using; starting key CASE technology. Work with key 4 1 tool components and application development using; module action diagrams, screen and report layout and data structure diagrams; Macro functionality and using within the key 4 1 development as well as key data types and data type sets. Analyse, design and implementation of computer programs in MVS, CICS environments using IDMS, KEY, COBOL, JCL, and VSAM. Must be willing to travel and relocate as required. MS or equivalent in Comp. Sc/Info Systems or rel. plus 3 years of exp. in the job offered or related field as a software engineer/consultant/programmer. A BS/BA in Comp Sci/Info Systems, or related and 5 yrs. or related work experience is considered to be the equivalent of a MS and 3 yrs. of exp. by our company. Several positions available. Must have proof of legal authority to work permanently in the U.S. Applicants may apply in person or by sending 2 resumes to: North Metro, Job Order # GA 6934224, 2943 N Druid Hills Rd, Atlanta, GA 30329 or the nearest Georgia Department of Labor Field Service Office.

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Assistant Vice President-IT wanted by international banking firm in Greenwich, CT to develop proprietary prepayment models to be used by financial analysts and traders to analyze and trade government mortgage-backed derivatives. Responsible for the development, implementation and maintenance of complex proprietary software packages, utilizing knowledge of computer algorithms, quantitative analysis and statistics to design and formulate mathematical models to determine the prepayment behavior of FNMA, FHLMC, GNMA and other mortgage-backed securities. Responsible for all phases of the development cycle, including the design, development, testing and implementation of real-time data systems utilizing large RDBMS, C, C++, Visual Basic and SQL in both Unix and NT environments as well as monte carlo simulations and OAS methodologies, including BDT and HJM multi-factor models. Must write and present complex material to technical and non-technical users. Must have a Master's degree in Computer Science, Engineering, Physics or Math and 2 years of experience in the job or as a Financial Analyst, Programmer/Analyst or Research Assistant, including 2 years of experience designing and developing mathematical models utilizing C++. Respond to Dave MacWilliams, Greenwich Capital Markets, Inc., 600 Steamboat Road, Greenwich, CT 06830.

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Senior System Administrator (TWC Latin America) (Atlanta, GA) - Responsible for site training and installation, testing support plan and all other operational and maintenance responsibilities for Latin Weather System network based on Unix system, NT server, TCP/IP network and related hardware, software, network and data configurations. Evaluate and direct the interconnection of the Latin American Networks with company-wide systems or networks. Responsible for ensuring and coordinating emergency support 24 hours per day, seven days per week. Develop and maintain operational support, backup and recovery procedures and their execution. Key person responsible for Mid System additions or modifications and training of Personnel in system administration. Principal contact with Latin Weather System vendors, reporting users, system and network support. Must have Bachelor's degree or foreign degree equivalent in Computer Science, Electrical Engineering or related field, & five years experience in the job offered (Senior System Administrator) or five years progressive experience as a Unix System Administrator. Must also have five years experience in TCP/IP network management and two years experience on Windows NT system administration. Experience may have been obtained concurrently. Must have proof of legal authority to work in US. Submit resume to: Director Org Dev., The Weather Channel Latin America, Ref: SrSA 300 Interstate North Parkway, Atlanta, GA 30339

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Sr. Software Developer (Lilliston MN) Research design, develop, implement and test computer software in a client/server environment, utilizing OOA, OOD and Forte Tool. Translate application requirements and use cases into problem-domain object oriented work products, identify objects. Develop event-driven work products, including scenario/sequence diagrams. Translate, transform and implement design work products into source code. Provide technical support to junior team members as required. Must have Bachelor's Degree in Computer Science, Engineering or Related Field or equivalent, and 5 yrs experience in job offered or 5 yrs progressive experience as a Software Developer. Experience may have been obtained concurrently and must include (i) 3 yrs experience using OOA and OOD in client/server environment, (ii) 2 years experience using either Smalltalk or C++ and (iii) 1 yr experience using Forte. Must have legal authority to work in the U.S. Send resume to Attn: N. Page, S1 Corporation, REF: SDV-MA, 3280 Peachtree Road, Ste. 1700, Atlanta, GA 30305-1108.

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*1. Demonstrate ability to program and code in Visual Basic, Visual Basic Scripts, SQL Relational database and HTML.
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MIS Engineer sought by computer case & power supply importer in Fremont to maintain company's MIS system. Send resume to Sunus Suntek, HR Dept, 47626 Kato Rd., Fremont, CA 94538.

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System Analyst wanted by Computer Services Co. in Hayward, CA. Must have BS or foreign equiv in CS or related field & 2 yr exp. Respond to: HR Dept, Computerland of Hayward COH, Inc., 2252 West Winton Ave., Hayward, CA 94545. For more job opportunities see www.computerlandsite.com

Diversity in IT Careers

Ask leaders of major IT organizations what the biggest challenges are for the future, and you'll hear more and more about people. About opening the minds of management and the organization to the broadest possible scope of understanding diversity, beyond the visible differences of age, gender or the color of skin. Until this understanding is a reality, individuals can't attain their highest levels of performance, the best ideas can't percolate through a company, and firms will continue to experience the high cost when someone with talent goes unnoticed

Ajilon
Towson, MD

In three decades of operation, Ajilon has long considered itself a diverse company. "We are diverse in terms of people and in terms of how we work," explains Samantha O'Neill, corporate human resources manager. "We believe the challenge is working with personalities of individuals, not just what visually makes them diverse."

Among the significant challenges for Ajilon is that there are varied cultures and nationalities represented. To ensure that employees find a niche, Ajilon has a buddy system in which a current employee helps a new, foreign-national employee adapt to work, but also to living in a new country. "Because we are a consulting firm, helping people link together is a constant challenge. Each of our districts handles this differently, depending on the needs of employees working in this district," explains O'Neill.

"We have a reputation as an equitable employer, and that reputation alone goes a long way in attracting diverse individuals to our company," O'Neill adds. "We believe that ongoing learning is one of the most important aspects of attracting and keeping talented individuals. We offer this through a variety of programs, including Virtual University – an online training program that employees can use to increase their technical or business skills. We know that strong leaders are essential to an organization that values individuals and ensures that they can continue to develop, so we place a lot of emphasis on selection of our managers."

Ajilon has more than 50 offices across the United States, each with openings for specific positions. However, O'Neill says that the company is looking generally for individuals with development experience in Java, Visual Basic, C++, and Unix, data warehouse architects, security consultants, web designers and software quality assurance engineers.

"Our role, in this day and age, is to help people learn to work with one another," O'Neill adds. "That's why Ajilon is a great place to be."

Global Crossing
Rochester, NY

"Our company embraces people from all walks of life who have a contribution to make." That's the bottomline at Global Crossing, according to Marie Philippe, director of diversity. "We are interested in people of all backgrounds. What counts is the contribution they can make to our common goals – developing our products, supporting our business, making a profit."

With its global operation, the company takes its valuing of diversity philosophy beyond the walls of its building. "We want to embrace valuing of diversity in our communities, as well," Philippe points out. "In general, we believe that valuing diversity is understanding beyond our own experiences. That may be easier for someone who has traveled or lived in other cultures. Now if we can just find a way to create more exchanges between cultures and countries so that employees can understand on a personal level."

Among the goals Global Crossing has set is to do a better job of developing from within the diverse workforce that exists. "We are establishing a mentoring program that will allow the employee to spend 12 to 18 months with an individual and then move to another mentor. This helps develop the comprehensive skills so needed by the business, but also helps us deal with the fast-moving environment we are in. There's a wealth of information and wisdom to tap into."

Global Crossing has 17,000 employees worldwide. During 2001, the company will be hiring additional engineers and technology experts to help with the continued development of a fiber optic network that spans the globe. "We need people who understand networks, telephony and the development of new technologies around the communications sector," Philippe says. "We look for people who are team players, who have the vision to think beyond the immediate answer."

Jobs are available in Rochester, Denver, New York City, Beverly Hills and New Jersey. "We believe that our ability to embrace a fully diverse workforce helps us attract the top talent," Philippe adds. "This isn't about correct rhetoric. We are living what we believe."

careers

For more job opportunities turn to the pages of ITcareers.

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- Produced by Carole R. Holden
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- Images: www.eyestock.com

IT Careers in Southern California

The 21st century version of the Gold Rush is the Silicon Rush. California's economy has grown faster than the rest of the United States for the past four years. Even with dot-com failures, the unemployment rate is down, incomes are up, and jobs are aplenty from the Bay Area south to San Diego.

In fact, many high tech experts will tell you that web development and the dynamic technology needs of the entertainment industry are concentrated in Southern California, where Silicon Beach is fast becoming a rival to Silicon Valley.

Day Network
Los Angeles, CA

Increasingly it's the traditional companies who are turning the Internet into a viable tool. Bricks and morter operations are expanding their businesses on to the web, and that's where Day Network comes in. Humberto Quintanar, vice president for professional services, says the company distinguishes itself by providing viable web development software that allows a business to realize any Internet initiative and integrate internal and external initiatives. The Day solution is extremely user-friendly — customers can maintain the site themselves. "It's a unique product we call a Global-Ready Enterprise web platform that allows the customer to integrate a variety of modules into a Web-enabled system," he explains.

Day Network in the United States has a research and development operation that works alongside the corporate R&D operation in Switzerland. "This means we can offer employees the opportunity to dive into the guts of our product and imagine how it can be even better. Because of our product, you have the chance to do custom work for customers, too," says Quintanar.

Recently the company developed the Rush Limbaugh web site, which now receives 3 million hits per day. "The customer can make changes to the web site quickly and easily, without additional programming," Quintanar explains. "The Rush Limbaugh site is updated by non-technical staff at least once a day. That's the beauty of our product."

Day Network plans to hire additional project managers, developers in Java and Java Script and junior positions. With just over 150 people in the United States by year-end 2000, Quintanar says Day Network U.S. will expand by 100 percent in 2001. "My goal is to put together the best consulting development group in the industry. We are looking for people with technical skills, but also people with the ability to communicate with the customer, to take ideas and turn them into a plan the customer can understand. We look for people who take ownership of their work and are proud of the product they produce."

In addition to a strong base compensation package, Day Network comes with the backup resources of a global operation. "The company has been in business since 1993 in Europe and came to the United States in 1998," Quintanar says. "We are a publicly held group in Europe, so we are not a typical start-up. Our task is to grow the client base here in America. To do that, we need people who are happy with the technological challenges we offer, who are continuously learning and who aren't afraid to handle any task."

Farmers Insurance Group
Los Angeles, CA

Among the most strategic users of Internet-based technologies in the United States are insurance companies. Offering auto, home, business, life and professional liability lines of products, Farmers Insurance Group has more than 18,000 employees caring for 16 million policies.

"Technology plays a vital role in assuring the company's more than 15,000 agents have the information they need, when they need it, to provide customer-focused service," explains Gail Pedrick, director of IT planning and operations at Farmers.

Recently, Farmers launched its agency dashboard, an Internet site that provides agents with tools and resources to maximize productivity and effectiveness across multiple lines of business. In late January, Farmers will launch its Customer Restoration Network. "Integrating numerous technologies, including call center telephony, customer relationship management, Internet and imaging, the Customer Restoration Network will revolutionize Farmers' claims handling process — customers will make one phone call to our customer care center, putting into action all the activities to restore the customer's life to order as seamlessly as possible," says Pedrick.

Farmers' IT group is growing, hiring 200 staff members in 2000 and establishing two new departments — one for emerging technology and one for enabling e-business initiatives. Farmers plans to hire about 130 IT professionals in the coming year. "We're already beginning work on the next releases for the agency dashboard and the Customer Restoration Network," Pedrick adds. "We'll also web-enable our commercial lines system. We need people with development and support skills, including Java, HTML, UNIX, WebSphere and Siebel."

"One of the things that sets Farmers apart is our people-centric environment, which begins with our CEO who started here 30 years ago as a claims trainee," says Pedrick. "His loyalty and passion for Farmers is palpable. The second thing is our CIO, Cecilia Claudio. She is the Cinderella who has brought Farmers IT to the ball. She has transformed the IT organization into a strategic business partner."

Farmers invests in people too, with educational/[illegible] programs. Besides the corporate tuition reimbursement program for external classes, the IT group offers Internet-based training for several hundred technical and soft-skill courses. IT staff are encouraged to spend at least five hours per month pursuing education or training.

"Our work is challenging, risk-taking is encouraged and results are recognized and rewarded," adds Pedrick.

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For more job opportunities with Southern California firms, turn to the pages of ITcareers.

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Assistant Technology Editor Tommy Peterson (508) 620-7729
Washington Bureau Chief Mitch Betts (202) 347-6718
West Coast Bureau Chief Pimm Fox (650) 524-7116
West Coast Editor Mark Hall (503) 391-1156

REPORTERS

Mobile computing/wireless Bob Brewin (301) 277-8069
Internetworking, telecom/wireless, defense and aerospace James Cope (219) 273-5369
Application development, Java, automation Lee Copeland (773) 394-0402
Careers, labor issues, outsourcing, application service providers, health care Julekha Dash (804) 295-9512
General assignment, e-mail, groupware Jennifer DiSabatino (508) 820-8122
Network, systems management, food, retail and restaurant Sami Lais (301) 270-1427
General assignment, travel Michael Meehan (508) 620-7704
General assignment, storage Lucas Mearian (508) 820-8215
Microsoft operating systems and BackOffice, retailers Carol Sliwa (508) 628-4731
Enterprise resource planning, assistant relationship management and supply-chain software; Novell Marc L. Songini (508) 820-8182
General assignment, Intel servers, transportation/carriers Linda Rosencrance (508) 628-4734
State/federal government, antitrust, legal issues, politics Patrick Thibodeau (202) 333-2448
IT management, financial services Maria Trombly (483) 323-0842
B2C e-commerce and technologies, databases, data mining, Web infrastructure Dan Verton (703) 321-2277
Large systems/high-end Web server technology, security, heavy manufacturing Jaikumar Vijayan (508) 820-8220
General assignment, Linux and Unix operating systems Todd Weiss (717) 560-5255

OPINIONS

Senior News Columnist Frank Hayes (503) 252-0100
Columns Editor Rick Saia (508) 820-8118

FEATURE EDITORS

Special Projects Editor Ellen Fanning (508) 820-8204
Business Features Editor Thomas Hoffman (845) 988-9630
Reviews Russell Kay (508) 820-8175
Special Projects Editor Julia King (610) 532 7599
Technology Evaluations Editor Robert L. Mitchell (508) 820-8177
IT Management Rick Saia (508) 820-8118
IT Careers David B. Weldon (508) 820-8186

FEATURE WRITERS

Gary H. Anthes (202) 347-0134
Matt Hamblen (508) 820-8567
Kathleen Melymuka (508) 628-4831
Kim S. Nash (773) 275-4133
Mathew Schwartz (508) 820-8285
Deborah Radcliff (707) 829-5823

RESEARCH

Mari Keefe, **research manager**
Allison Wright, **research associate**
Suzane Wilson, **research assistant**
Jennifer McBride, **research intern**

COPY DESK

Jamie Eckle, **managing editor/production** (508) 820-8202
Jean Cornelius, **assistant managing editor/production**
Michele Lee, Bob Rawson, **senior copy editors**
Jacqueline Day, Eugene Demaitre, Linda Frank, Mike Parent, **copy editors**

GRAPHIC DESIGN

Stephanie Faucher, **design director** (508) 820-8235
Mitchell J. Hayes, **art director**; April O'Connor, **associate art director**
Julie D'Errico, Michael Knapp, **graphic designers**
Rich Tennant, John Klossner, **cartoonists**

ADMINISTRATIVE SUPPORT

Linda Gorgone, **office manager** (ext. 8176)
Connie Brown (ext. 8178), Lorraine Witzell (ext. 8139)

COMPUTERWORLD ONLINE

Tom Monahan, **director, online and design** (508) 820-8218
Sharon Machlis, **managing editor/online** (508) 820-8231
Craig Stedman, **online news editor** (508) 820-8120
Marian Prokop, **online news editor** (508) 620-7717; Vanessa DiMauro, **communities director** (508) 820-8180; Brian Sullivan, **communities page editor** (508) 620-7780; John R. Brillon, David Waugh, **associate art directors**; Peter Smith, **Web development manager**; David Ramel, **online production coordinator and e-mail newsletter editor**; William Rigby, **online services manager**; Paul Krasnow, Matthew Morring, **graphic designers**

CONTRIBUTING COLUMNISTS

Allen E. Alter, Joe Auer, Jim Champy, John Gantz, Dan Gillmor, Peter G. W. Keen, Bill Laberis, David Moschella, Fran Quittel, Paul A. Strassmann, Dan Tapscott, Ed Yourdon

CONTRIBUTING WRITERS

Leslie Goff, Amy Helen Johnson

COMPANIES IN THIS ISSUE

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Mobile Sales

er fast food restaurants, video stores and grocery chains. He said Exxon Mobil expects to have 30 million Speedpass users within five years.

Tricon Global Restaurants Corp. in Louisville, Ky., started testing an RFID system last month at one of Luihn's Taco Bell and KFC outlets. Dave Brewer, vice president of technology at Tricon, said RFID technology might eventually be used by more than 100 million people in the U.S.

Brewer said he examined several wireless technologies and settled on RFID because it's simple. "It has transmission security, it serves the needs of our customers, and [it performs] a cashless transaction faster than our current credit card system," he said.

A typical RFID tag carries a unique customer ID number embedded in a computer chip. It's scanned by a reader, which is linked to a customer's credit or debit account.

Doubts Expressed

Mike Liard, an analyst at Venture Development Corp. in Natick, Mass., said RFID "definitely has a lot of potential." But he called the Exxon Mobil and Tricon market projections "very, very aggressive."

Steve Halliday, vice president of technology at AIM Inc., a Pittsburgh-based trade association for the automatic identification and data capture industry, also doubted that consumer use of RFID will command the market scale suggested by Exxon Mobil and Tricon. But he said that "return on investment can be as little as seven or eight months."

Luihn, president of Luihn Food Systems, said, "I have customers begging me for the tags." He said RFID will boost credit card sales in his stores, while speeding up the processing of transactions.

"An average credit card transaction takes about 30 seconds ... while authorization with [RFID] takes five seconds," Luihn said.

McDonald's has been testing Exxon Mobil's Speedpass since April at nine Chicago-area restaurants. Clay Nicolsen, senior director of technology for the Great Lakes division of Oak Brook, Ill.-based McDonald's, called RFID "very simple and easy to use. ... It's much simpler to use than cell phones ... and our customers like it. They find it very appealing."

Piggy-backing

Toll roads and bridges around the country have widely adopted RFID technology as a way to speed toll payments, and McDonald's has piggybacked another test on the FasTrack toll payment system operated by the Transportation Corridor Authority (TCA) in Orange County, Calif.

John Ramirez, deputy director of technical services at the TCA, said the McDonald's test involves four restaurants located near the authority's toll roads. He noted that the amount spent per transaction by FasTrack customers is 33% higher than the average cash transaction.

Ramirez said about 10,000 FasTrack customers have engaged in 80,000 transactions at McDonald's since the test began, with usage jumping sharply at the end of last year. "We had 50,000 transactions from April to October, and 30,000 from October until Dec. 25," Ramirez said.

Susy d'Hont, a marketing communications specialist at Dallas-based Texas Instruments Inc., which manufactures the RFID tag used by McDonald's and Tricon, said she doubts that the toll authorities will make much headway outside their core business because of the costs associated with the tags used in moving automobiles. She estimated the retail cost of a car tag to be about $25 vs. about $1 for a tag that can be used for stationary purchases.

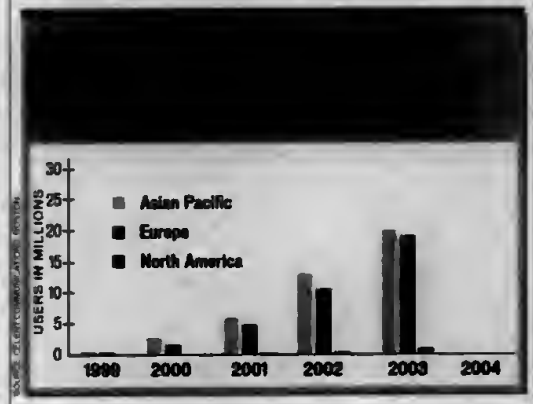
Giordano said he continues to explore alternative technologies to RFID to power Speedpass. But, he added, any substitute "must be as easy to use ... and we already have 90% customer satisfaction with 4.5 million customers."

U.S. Brokerages and Banks Push to Close Wireless Cash Gap

But U.S. will lag far behind Europe, Asia

BY MARIA TROMBLY

THE NUMBER of people around the world who transfer money using wireless devices is expected to jump from 4.6 million today to 60 million by 2004, according to a new report that was published last week by Celent Communications LLC. But the number of mobile payers in the U.S. is expected to grow to only 2.5 million by then.



The reason for the disparity?

"There are more financial institutions in Europe and Asia that offer these services," said Octavio Marenzi, managing director at Cambridge, Mass.-based Celent.

The proliferation of mobile financial services has been spurred by the push among countries in these regions to standardize on certain types of devices, he added. In addition, he said, a higher percentage of Europeans use digital phones — there are virtually no analog cell phones left there. By contrast, 40% of the mobile phones used in the U.S. are analog.

With a large market of potential customers that's been virtually untapped, a number of U.S. banks and brokerages are trying to close that gap with wireless payment services for consumers and business customers.

For example, Bank of America Corp. will soon be rolling out a national online bill payment platform that will eventually include a wireless component, said Mark Williams, a spokesman at the Charlotte, N.C.-based bank.

"That's high on our list of something that our users are going to want and we will be developing," he said, although he declined to give a time line. Bank of America, which passed the 3 million mark for online customers last week, has the largest base of online banking users in the country.

Online brokerages, such as San Francisco-based Charles Schwab & Co., have been offering wireless services to their customers since last summer.

Given the proliferation of wireless devices, such as cell phones, pagers and personal digital assistants, these companies usually go through a third party to link with customers through different telecommunication companies.

Toronto-based 724 Solutions Inc. is one of the market leaders in this field, with a core platform used by banking and brokerage services that is now moving into mobile e-commerce.

Easy Payments

For example, a customer at Bank of Montreal — one of 724's clients — can visit a shopping site affiliated with the bank through the bank's e-commerce portal. The customer can then select a product and pay for it using an automated process that fills in the required fields.

Bank of Montreal supports more than 70 different devices and already offers other connectivity tools, such as third-party electronic wallets, according to Chris Jarman, 724's executive vice president for mobile commerce.

Another start-up, Bellevue, Wash.-based CheckSpace Inc. already lets business users send money to an e-mail address — via the Internet and through the use of wireless devices. Palo Alto, Calif.-based X.com's PayPal lets individuals send money to each other in a similar way.

The key to ensuring success in the U.S. wireless payments industry, according to Marenzi, is for the major players — including financial institutions, telecommunications carriers and merchants — to partner with one another. Those firms seeking to set up closed, proprietary wireless payment systems "are unlikely to succeed," he added.

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FRANK HAYES/FRANKLY SPEAKING

Security Hole

DID CYBERTHIEVES ACTUALLY STEAL credit card numbers when they broke into Egghead.com's systems last year? Egghead and its hired-gun security firm, Kroll Associates, say no. But in the past week, unhappy Egghead.com customers have told *Computerworld*'s Linda Rosencrance that Egghead's claim is, put politely, baloney.

"My credit card number was taken and used to charge phone calls through a Moscow phone exchange," one reader wrote. "I called and e-mailed Egghead with this information. I know it came through them because I had not used this card, it was dormant, with the exception of one software purchase over one year ago from Egghead."

Another reader wrote, "I was traveling in Quebec City with friends and a restaurant manager took my credit card from me and said it was stolen. Imagine my surprise when I called my credit union the next day and they told me the Egghead database had been hacked. "I haven't purchased anything from Egghead in two years. I want to know why my credit card is still in the database after all this time — what do you need it for?"

Good question — and one that should be sending chills up the spine of every IT shop that runs a Web store.

Egghead.com CEO Jeff Sheahan insisted in his message to customers last Monday that Kroll's internal investigation "has uncovered evidence which suggests that Egghead.com's existing security systems interrupted the intrusion while it was in progress, and that customer data has not been compromised."

When asked specifically about those customer complaints, an Egghead.com spokeswoman would say only that the company's investigation is ongoing.

Yeah, right. Other customers who talked to *Computerworld* say they contacted Egghead.com in the past when they suspected their stolen credit card numbers had been hijacked from Egghead, and got no response. Not a sympathetic word, much less a serious investigation.

It looks like Egghead.com has a problem. Three problems, actually:

■ Egghead.com keeps credit card numbers too long. Customers who haven't ordered from the company in years are understandably furious that their credit card numbers were still sitting in Egghead.com's systems, just waiting to be ripped off.

Sure, it's a convenience to regular customers when the Web store knows their credit and shipping information. But apparently no one at Egghead.com thought of aging off accounts that haven't been used in more than a year.

■ Egghead.com has no effective system for investigating customer credit card security concerns. When a customer thinks his credit card number was stolen from a Web store, that's not just a customer service issue — it's also a red flag for IT.

Egghead.com has a problem. Three problems, actually.

Maybe the customers are wrong, and the site's database is secure. But maybe it's not. No one has a prayer of knowing unless someone is collecting complete information on each incident and watching for patterns. Yes, that's a lot of work. Apparently, Egghead.com wasn't doing it.

■ Egghead.com believes after-the-fact spin control is a better policy than building trust with its customers. In the past year, we've seen high-profile security screw-ups at Kaiser Permanente, Western Union and other companies where top management bit the bullet and came clean with customers. Customers seem to have forgiven them.

But apparently that's not the Egghead way. Sure, Egghead.com is a dot-com whose stock is worth pennies these days. Maybe Sheahan figures it's safer to stonewall and pray that optimistic press releases will cover a multitude of sins.

But that's not a very good way to run a business. And it's a lousy way to manage security. ◗

Hayes, Computerworld's senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

SHARK TANK

FOR TWO HOURS, corporate honcho rails at the IT troops about the importance of records management and keeping information up-to-date. But one of the example how-to-do-it overhead slides is about the number of e-mail messages sent from the mainframe. Snickers a pilot fish, "We retired the last mainframe e-mail account more than a year ago."

AFTER TWO DAYS of running Cat 5 cable through the ceiling from the server room to the new training space next door, pilot fish is replacing the last of the ceiling tiles when a project manager asks what he's been doing with all this cable. Fish explains he's running wire for network connections for an upcoming training class. Oh, says manager, "Is that room going to be using that new wireless system?"

CONSULTANT PILOT FISH crosses five states to spend a week installing software modifications, training staff and testing the changes at a client site. As he's leaving, he tells local boss, "If anything unanticipated comes up, just call and I'll drop whatever I'm doing to deal with it." "Unanticipated?" asks the boss in a sudden panic. "Like what?"

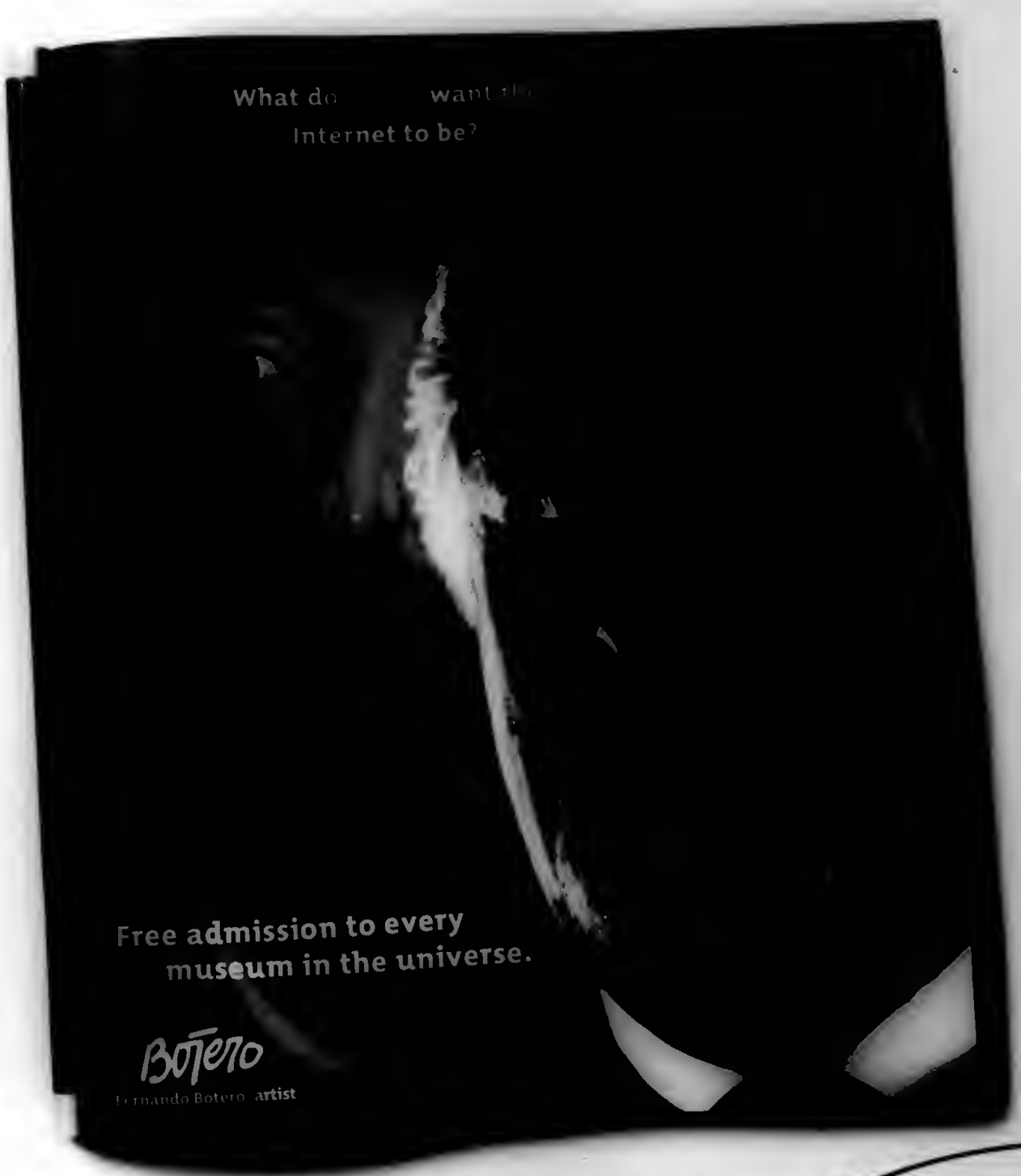
TELEPATHY, MAYBE? IT manager asks pilot fish, "Other than turning it on or taking the top off, are there any other ways to figure out how much RAM a PC has?"

HELP DESK pilot fish gets voice mail from mobile user who can't turn off his laptop. While driving down the freeway, user says, he managed to unscrew the screws that hold the hard drive in and removed the drive – but it still wouldn't shut off. "I guess he never thought of trying to pull out the battery," muses the fish.

FIRST THING one morning, tech support pilot fish gets a call from a frantic user – his system won't boot. Fish gets it going from a floppy disk and discovers all the system files needed to run Windows are missing from the hard disk's root directory. Under questioning, the user fesses up: "Yesterday I decided to clean up my system and noticed all those strange files. *I* didn't create them, so I decided to give them a home in another folder to tidy things up." Sighs the fish, "At least he didn't just delete them."

Before you delete anything else, tell me about it: **sharky@computerworld.com.** You get a sharp Shark shirt if your true tale of IT life sees print – or if it shows up in the daily feed at *computerworld.com/sharky.*

The 5th Wave



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